On activation of the starting solenoid, the start position must be reached. APPLICATION Omnibus A01

```
: 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      Cam sequence
Note inst. in remarks column
                                                      SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300 Tolerance + - 0.50 (0.75)
Test sheet
                    : VOL 10_0 Q
                    : 12.06.87
Edition
Superceeded
                   : 11.82
Calibrating oil : ISO-4113
                                                      SD mark cyl. no. : 1
                    : 0 401 846 759
                                                      BASIC SETTING
Combination no.
                                                                     1/mi: 700
Injection pump
                                                      1st speed
Pump designation : PE6P110A320RS3108Y
EP type number
                    : 0 411 816 729
                                                      Contr.-rod trav.mm: 11.10...11.20
Governor
Governor design.
                    : RQV250...1100PA649
                                                      Del.quantity cm3/: 13.8...14.0
Governer no.
                    : 0 421 815 346
                                                                    100H.: (13.5...14.3)
Customer-spec. information
                                                                    cm3/:0.4
Customer
                    : VOLVO
                                                      Dispersion
Engine
                                                                    100H.: (0.7)
                    : THD 100EC
                                                      2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/: 3.2...3.6

100H.: (2.9...3.8)

Dispersion cm3/: 0.3

100H.: (0.6)
1st version kW : 180.0
Speed
              1/min: 2200
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                   : 38...42
                                                      (B) Setting of injection pump with
Overflow valve
                                                           externally-mounted governor
                    : 1 417 413 025
                                                      SLEEVE TRAVELS
                                                      1st speed 1/min: 250
Inlet press., bar : 1.50
                                                        Sleeve travel mm: 1.10...1.30
                                                      2nd speed 1/min: 500
Calibrating nozzle-holder
                  : 0 681 343 009
                                                        Sleeve travel mm: 4.10...4.90
 assembly
                                                      3rd speed 1/min: 700
                                                        Sleeve travel mm: 6.30...6.70
Opening
 pressure, bar : 172...175
                                                                   1/min: 950
                                                      4th speed
                                                        Sleeve travel mm: 6.30...6.70
                                                      5th speed 1/min: 1100
                                                        Sleeve travel mm: 7.00...7.50
Test inj. tubing : 1 680 750 015
                                                      SLEEVE POSITION
Outside diameter
x Wall thickness
                                                      Control-lever position
                  : 6.00x1.50x600
                                                                   Degree: -1
1/min: 1175
x Length mm
                                                      Speed
                                                      Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values ____
                                                      1st version
                                                                    1/min: 700
START OF DELIVERY
                                                      Speed
                                                      Charge press. hPa: 900
Test pressure, bar: 25...27
                                                      Del.quantity cm3/: 138.0...140.0
                                                                   1000H.: (135.0...143.0)
cm3/ : 4.00
                    : 3.00...3.10
Prestroke mm
                    : (2.95...3.15)
                                                      Dispersion
                                                                   1000H.: (7.50)
Contr.-rod trav.mm: 9.00...12.00
A02
```

HIGHEST RATED SPEED 1st version Control-lever position degrees: 55...63 Testing: 1st c-rod trav.mm : 10.10 1/min: 1140...1150 Speed 2nd c-rod trav.mm : 4.00 1/min : 1205...1235 1/min : 1350 Speed 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 8...16 Testing: 1/min : 100 Speed C-rod trav.mm min: 6.70 1/min : 250 ...5.20 Speed C-rod trav.... : 2.00 C-rod trav.mm 1/min : 345...405 Speed compensator (LDA,ADA,ALDA) 1st version Setting Speed 1/min : 500 hPa : 900 Pressure Contr.-rod trav.mm: 11.10...11.20 Measurement 1/min : 500 Speed 1st pressure hPa : -: 9.60...9.80 C-rod trav.mm 2nd pressure hPa : 275 : 9.90...10.00 C-rod trav.mm 3rd pressure hPa : 400 C-rod trav.mm : 10.70...10.90 FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : -1/min : 700 Speed Del.quantity cm3/: 105.5...108.5 1000H.: (103.0...111.0) STARTING FUEL DELIVERY 

A03

LOW IDLE

rispersion cm3/: 3.00 1000H.: (6.00)

Remarks:
Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm
On activation of the starting solenoid, the start position must be reached.

APPLICATION Omnibus

Cam sequence : 1-5- 3- 6- 2- 4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column SD ang. spacing  $^{\circ}$ CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Test sheet : VOL 10,0 Q1 : 12.06.87 Edition Superceeded : 11.82 Calibrating oil : ISO-4113 SD mark cyl. no. : 1 Combination no. : 0 401 846 760 BASIC SETTING Injection pump 1/mi: 700 1st speed Pump designation : PE6P110A320RS3108X EP type number : 0 411 816 730 Contr.-rod trav.mm: 12.10...12.20 Governor Del.quantity cm3/ : 15.9...16.2 Governor design. : RQV250...1100PA649 Governer no. : 0 421 813 346 100H.: (15.6...16.4) Customer-spec. information cm3/:0.4Customer : VOLVO Dispersion : THD 100ED 100H.: (0.7) Engine 2nd speed 1/min: 250.0 Contr.-rod trav. m: 5.0...5.2 Del.quantity cm3/: 3.2...3.6 1st version kW : 203.0 1/min: 2200 Speed 100H.: (2.9...3.8) TEST BENCH REQUIREMENTS cm3/:0.3Dispersion Calibrating-oil inlet temp. °C 100H.: (0.6) : 38...42 (B) Setting of injection pump with Overflow valve externally-mounted governor : 1 417 413 025 SLEEVE TRAVELS 1st speed 1/min: 250 Inlet press., bar : 1.50 Sleeve travel mm: 1.10...1.30 2nd speed 1/min: 500 Calibrating nozzle-holder Sleeve travel mm: 4.10...4.90
3rd speed 1/min: 700
Sleeve travel mm: 6.30...6.70 : 0 681 343 009 assembly Opening pressure, bar : 172...175 4th speed 1/min: 950 Sleeve travel mm: 6.30...6.70 5th speed 1/min: 1100 Sleeve travel mm: 7.00...7.50 Test inj. tubing : 1 680 750 015 Outside diameter SLEEVE POSITION Control-lever position x Wall thickness Degree: -1 1/min: 1175 : 6.00x1.50x600 x Length mm Speed Cont.-rod travelmm: 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. FULL-LOAD DELIV. AT FULL-LOAD STOP per values \_\_\_\_ 1st version Speed 1/min: 700 START OF DELIVERY Charge press. hPa: 1200
Del.quantity cm3/: 159.0...162.0
1000H.: (156.5...164.5)
Dispersion cm3/: 4.00 Test pressure, bar: 25...27 : 3.00...3.10 Prestroke mm : (2.95...3.15) Contr.-rod trav.mm: 9.00...12.00 1000H.: (7.50) A04

HIGHEST RATED SPEED 1st version Control-lever position degrees: 61...69 Testing: 1st c-rod trav.mm : 11.10 1/min : 1140...1150 Speed 2nd c-rod trav.mm : 4.00 1/min : 1205...1235 Speed 1/min : 1350 4th speed : 0.00...1.00 C-rod trav.mm LOWEST RATED SPEED I Control-lever position degrees: 8...12 Testing: 1/min : 100 Speed C-rod trav.mm min : 6.70 1/min : 250 Speed C-rod trav.mm : 5.00...5.20 C-rod trav.mm : 2.00 1/min : 345...405 Speed compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : 1200 Contr.-rod trav.mm: 12.10...12.20 Measurement 1/min : 500 Speed 1st pressure hPa : ~ C-rod trav.mm : 9.30...9.40 2nd pressure hPa : 290 C-rod trav.mm : 9.60...9.70 3rd pressure hPa : 700 C-rod trav.mm : 11.80...12.00 FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : ~ 1/min : 700 Speed Del.quantity cm3/: 105.5...108.5 1000H.: (103.0...111.0) STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 160.0...190.0 1000H:: (156.0...194.0) Contr.-rod trav.mm: 20.00...21.00

A05

LOW IDLE

Speed 1/min: 250 Contr.-rod trav.mm: 5.00...5.20 Del.quantity cm3/: 32.0...36.0 1000H.: (29.5...38.5

1000H.: (29.5...38.5) Dispersion cm3/: 3.00 1000H.: (6.00)

Remarks:
Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm
On activation of the starting solenoid,

the start position must be reached.

APPLICATION Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Note inst. in remarks column Test sheet : SCA 11,0 R6 SD mark cyl. no. : 1 Edition : 09.03.87 Superceeded BASIC SETTING : 1.85 : ISO-4113 Calibrating oil 1st speed 1/mi: 700 Combination no. : 0 401 846 763 Contr.-rod trav.mm: 13.60...13.70 Injection pump Del.quantity cm3/: 16.8...17.0 : PE6P110A720RS3040 Pump designation : 0 411 816 713 EP type number 100H.: (16.6...17.2) Governor Governor design. : RQV200...1000PA555-1 Governer no. : 0 421 813 361 Dispersion cm3/:0.6Customer-spec. information 100H.: (0.8) Customer : SCANIA 1/min: 225.0 2nd speed Contr.-rod trav. m: 4.4...4.6 : DS11 14 Engine Del.quantity cm3/: 1.7...2.1 100H.: (-) TEST BENCH REQUIREMENTS cm3/:0.2Dispersion Calibrating-oil inlet temp. OC 100H.: (0.4) : 38...42 (B) Setting of injection pump with externally-mounted governor Overflow valve : 1 417 413 025 SLEEVE TRAVELS 1st speed 1/min: 225 Inlet press., bar : 1.50 Sleeve travel mm: 1.30...1.40 2nd speed 1/min: 330 Calibrating nozzle-holder assembly : 0 681 343 009 Sleeve travel mm: 2.30...2.70 3rd speed 1/min: 550
Sleeve travel mm: 3.90...4.20
4th speed 1/min: 1040
Sleeve travel mm: 8.00...8.20 Opening pressure, bar : 172...175 5th speed 1/min: 1160 Sleeve travel mm: 9.60...9.90 Test in i. tubing : 1 680 750 015 SLEEVE POSITION Outside diameter x Wall thickness Control-lever position Degree: -1 1/min: 1070 x Length mm : 6.00x1.50x600 Cont.-rod travelmm: 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL-LOAD DELIV. AT FULL-LOAD STOP Set constant delivery quant. per values \_\_\_\_ 1st version START OF DELIVERY 1/min: 700 Speed Charge press. hPa: 900
Del.quantity cm3/: 168.0...170.0
1000H.: (166.0...172.0)
Dispersion cm3/: 6.00 Test pressure, bar: 25...27 : 3.30...3.40 Prestroke mm : (3.25...3.45) Contr.-rod trav.mm: 9.00...12.00 1000H.: (8.00) Cam sequence : 1-5- 3- 6- 2- 4 HIGHEST RATED SPEED 1st version

Del.quantity cm3/: 240.0...290.0 1000H.: (-) Control-lever position degrees: 57...65 Contr.-rod trav.mm: 20.00...21.00 Testing: 1st c-rod trav.mm : 12.60 LOW IDLE 1/min : 1040...1050 Speed 2nd c-rod trav.mm : 4.00 Speed 1/min : 225 1/min : 1150...1180 Contr.-rod trav.mm: 4.40...4.60 Speed Del.quantity cm3/: 17.0...21.0 1000H.: (-) Dispersion cm3/: 2.00 1/min : 1300 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I 1000H.: (4.00) Control-lever position degrees: 4...12 Delivery-valve spring pre-tension 3.2...3.4 mm. Testing: Permissible alteration of 3.0...3.5 mm 1/min : 100 ADDITIONAL INFORMATION Speed C-rod trav.mm min : 5.90 1/min : 225 Speed C-rod trav.mm : 4.40...4.60 : 2.00 C-rod trav.mm 1/min : 310...370 Check and set without ROBO diaphragam Speed compensator (LDA,ADA,ALDA) 1st version For comb. with letter index see Setting VDT-I-400/116. 1/min : 500 hPa : 900 Speed Pressure Contr.-rod trav.mm: 13.60...13.70 For sealing see VDT-I-400/117. Measurement Speed 1/min : 500 1st pressure hPa : -: 12.00...12.10 C-rod trav.mm 2nd pressure hPa : 420 Test specifications approved by Scania : 13.20...13.30 on August 29, 1983 C-rod trav.mm Start of delivery - engine: 190 before 3rd pressure hPa : 290 C-rod trav.mm : 12.30...12.50 Firing sequence of engine: FUEL-DELIVERY CHARACTERISTICS 1-5-3-6-2-4. 1st version Charge press. hPa : 900 1/min : 1000 Speed Del.quantity cm3/: 171.5...176.5 1000H.: (169.0...179.0) Charge press. hPa : -1/min : 500 Speed Del.quantity cm3/: 133.0...137.0 1000H.: (131.0...139.0) STARTING FUEL DELIVERY 1/min : 100 Speed A07

```
Cam sequence : 1-5- 3- 6- 2- 4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                    SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                   : VOL 10.0 03
: 12.06.87
Test sheet
Edition
Superceeded
                   : 10.12.86
                 : ISO-4113
Calibrating oil
                                                    SD mark cyl. no. : 1
                   : 0 401 846 768
Combination no.
                                                    BASIC SETTING
Injection pump
                                                                   1/mi: 700
                                                     1st speed
Pump designation : PE6P110A320R$3080-1
                                                    Contr.-rod trav.mm: 13.20...13.30
                  : 0 411 816 734
EP type number
Governor
Governor design. : RQV250...1025PA589
                                                    Del.quantity cm3/: 17.9...18.2
Governer no.
                  : 0 421 813 332
                                                                  100H.: (17.7...18.5)
Customer-spec. information
                                                                  cm3/:0.4
Customer
                  : VOLVO
                                                    Dispersion
                                                                  100H.: (0.7)
Engine
                   : TD100FA
                 : 220.0
                                                                  1/min: 250.0
1st version kW
                                                    2nd speed
                                                    Contr.-rod trav. m: 4.3...4.5
Speed
             1/min: 2050
                                                    Del.quantity cm3/: 1.5...1.9
                                                                  100H.: (1.2...2.1)
cm3/: 0.3
TEST BENCH REQUIREMENTS
                                                    Dispersion
Calibrating-oil inlet temp. °C
                                                                  100H.: (0.6)
                   : 38...42
                                                     (B) Setting of injection pump with
                                                        externally-mounted governor
Overflow valve
                   : 1 417 413 025
                                                    SLEEVE TRAVELS
                                                    1st speed 1/min: 250
Inlet press., bar: 1.50
                                                      Sleeve travel mm: 1.20...1.30
                                                    2nd speed 1/min: 350
Sleeve travel mm: 2.20...2.80
Calibrating nozzle-holder
 assembly
                  : 0 681 343 009
                                                    3rd speed 1/min: 430
Sleeve travel mm: 3.50...3.90
Opening
pressure, bar : 172...175
                                                                 1/min: 1080
                                                     4th speed
                                                      Sleeve travel mm: 8.40...8.50
                                                    5th speed 1/min: 1150
                                                      Sleeve travel mm: 9.50...9.80
Test inj. tubing : 1 680 750 015
                                                    SLEEVE POSITION
Outside diameter
                                                    Control-lever position
x Wall thickness
                                                                 Degree: -1
                  : 6.00x1.50x600
x Length mm
                                                                  17min: 1080
                                                    Speed
                                                    Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values ____
                                                    1st version
START OF DELIVERY
                                                    Speed
                                                                  1/min: 700
                                                    Charge press. hPa : 900
Test pressure, bar: 25...27
                                                    Del.quantity cm3/: 179.5...182.5
                                                    1000H.: (177.0...185.0)
Dispersion cm3/: 4.00
Prestroke mm
                   : 3.00...3.10
                   : (2.95...3.15)
Contr.-rod trav.mm: 9.00...12.00
                                                                 1000H.: (7.50)
A08
```

```
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 61...69
Testing:
1st c-rod trav.mm : 12.20
            1/min : 1085...1095
  Speed
2nd c-rod trav.mm : 4.00
             1/min : 1160...1190
  Speed
             1/min : 1300
4th speed
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 5...13
Testing:
Speed
             1/min : 100
Speed 1/min: 5.80
Speed 1/min: 250
C-rod trav.mm : 4.30...4.50
CONSTANT REGULATION
            1/min : 270...380
Speed
 compensator (LDA,ADA,ALDA)
1st version
Setting
             1/min : 500
Speed
            hPa : 900
Pressure
Contr.-rod trav.mm: 13.20...13.30
Measurement
           1/min : 500
Speed
1st pressure hPa : -
                   : 10.50...10.60
  C-rod trav.mm
                  : 670
2nd pressure hPa
                  : 13.00...13.10
  C-rod trav.mm
                  : 270
3rd pressure hPa
                   : 10.80...11.10
  C-rod trav.mm
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 900
            1/min : 1000
Speed
Del.quantity cm3/: 171.0...177.0
1000H.: (169.0...179.0)
Charge press. hPa : -
             1/min : 700
Speed
Del.quantity cm3/ : 132.0...135.0
             1000H.: (129.5...137.5)
STARTING FUEL DELIVERY
```

Speed 1/min: 100
Del.quantity cm3/: 150.0...200.0
1000H.: (146.0...204.0)
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Remarks:
Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

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BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                           : 2.60...2.70
                                                       Prestroke mm
                                                                           : (2.55...2.75)
                                                       Contr.-rod trav.mm: 9.00...12.00
Note inst. in remarks column
                                                       Cam sequence : 1- 5- 3- 6-
                                                                                              2- 4
Test sheet
                    : VOL 12,0 K
                    : 21.05.87
Edition
                   : 12.9.86
: ISO-4113
Superceeded
                                                       SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Calibrating oil
                    : 0 401 846 772
Combination no.
                                                       SD mark cyl. no. : 1
Injection pump
Pump designation
                   : PE6P12OA32ORS3118
                                                       BASIC SETTING
EP type number
                    : 0 411 826 726
                                                       1st speed 1/mi: 700
Governor
Governor design. : RQV250...1025PA6S7
Governer no. : 0 421 813 368
                                                       Contr.-rod trav.mm: 13.30...13.40
                                                       Del, quantity cm3/: 23.8...24.1
Customer-spec, information
Customer
                    : VOLVO
                                                                      100H.: (23.5...24.4)
                    : TD 121 F
Engine
                                                       Dispersion
                                                                     cm3/:0.5
1st version kW : 282.4
              1/min: 2050
                                                                     100H.: (0.9)
Speed
                                                       2nd speed 1/min: 250.0
Contr.-rod trav. m: 3.3...3.5
Del.quantity cm3/: 1.8...2.3
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. OC
                    : 38...42
                                                                     100H.: (-)
                                                                     cm3/:0.5
                                                       Dispersion
                                                                      100H.: (0.7)
Overflow valve
                    : 1 417 413 000
                                                       SLEEVE POSITION
Inlet press., bar : 1.50
                                                       Control-lever position
                                                                    Degree: -1
                                                                     17min: 1090
Calibrating nozzle-holder
                                                       Speed
                   : 1 688 901 019
                                                       Cont.-rod travelmm: 15.20...17.80
 assembly
                                                       FULL-LOAD DELIVE AT FULL-LOAD STOP
Opening.
 pressure, bar
                    : 207...210
                                                       1st version
                                                       Speed 1/min: 700
Charge press. hPa: 1200
Del.quantity cm3/: 238.0...241.0
1000H.: (235.0...244.0)
Dispersion cm3/: 5.00
Perforated-plate
 diameter mm
                    : 0,8
                   : 1 680 750 067
Test inj. tubing
                                                                    1000H.: (9,00)
Outside diameter
x Wall thickness
                                                       HIGHEST RATED SPEED
                    : 6.00x1.50x1000
                                                       1st version
x Length mm
                                                       Control~lever
(A) Injection pump setting values
                                                        position degrees: 61...69
    Insp. values in parentheses
    Set constant delivery quant.
                                                       Testing:
                                                       1st c-rod trav.mm : 12.30
    per values
                                                         Speed 1/min: 1085...1095
START OF DELIVERY
                                                       2nd c-rod trav.mm : 4.00
Test pressure, bar: 25...27
                                                         Speed 1/min: 1150...1180
                                                       3rd c-rod trav.mm : 4.00
A10
```

```
4th speed 1/min: 1250
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 6...14
Testing:
             1/min : 100
Speed
C-rod trav.mm min: 4.80
            1/min : 250
Speed
                 : 3.30...3.50
C-rod trav.mm
C-rod trav.mm
            1/min : 285...345
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
             1/min : 500
Speed
            hPa : 1200
Pressure
Contr.-rod trav.mm: 13.30...13.40
Measurement
Speed
             1/min : 500
1st pressure hPa : -
C-rod trav.mm : 8.80...9.00
2nd pressure hPa : 800
  C-rod trav.mm : 13.10...13.20
3rd pressure hPa : 170
  C-rod trav.mm : 9.20...9.50
FUEL-DELIVERY CHARACTERISTICS
Charge press. hPa : -
Speed 1/min: 700
Del.quantity cm3/: 138.0...142.0
             1000H.: (135.0...145.0)
STARTING FUEL DELIVERY
LOW IDLE
             1/min : 250
Speed
Contr.-rod trav.mm: 3.30...3.50
Del.quantity cm3/: 18.0...23.0
1000H.: (-)
            cm3/: 5.00
1000H.: (7.00)
Dispersion
Remarks:
Delivery-valve spring pre-tension =
```

2.40...2.60 mm.
Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12, 0 Edition : 21.05.87 Superceeded : 25.9.86 : VOL 12, O I Calibrating oil : ISO-4113

: 0 401 846 773 Combination no.

Injection pump

Pump designation : PE6P12OA32ORS3116 EP type number : 0 411 826 727 Governor

Governor design. : RQV250...1025PA657 Governer no. : 0 421 813 368

Customer-spec. information : VOLVO Customer

: TD 120 G Engine

1st version kW : 242.7 Speed 1/min: 2050

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Perforated-plate

diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

Del.quantity cm3/: 197.0...199.0 1000H.: (194.0...202.0) Dispersion cm3/: 5.00 : 2.60...2.70 : (2.55...2.75) Prestroke mm Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5-3-6-2-4 1000H.: (9.00) HIGHEST RATED SPEED 1st version SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Control-lever position degrees: 58...66 SD mark cyl. no. : 1 Testing: 1st c-rod trav.mm : 10.40 Speed 1/min : 1065...1075 2nd c-rod trav.mm : 4.00 BASIC SETTING Speed 1/min: 1125...1155 3rd c-rod trav.mm: 4.00 1/mi: 700 1st speed Contr.-rod trav.mm: 11.40...11.50 4th speed 1/min : 1250 C-rod trav.mm : 0.00...1.00 Del.quantity cm3/ : 19.7...19.9 LOWEST RATED SPEED I 100H.: (19.4...20.2) Control-lever position degrees: 6...14 cm3/ : 0.5 Dispersion Testing: 100H.: (0.9) 1/min : 100 Speed C-rod trav.mm min : 7.10 Speed 1/min : 250 2nd speed 1/min: 250.0 Contr.-rod trav. m: 5.6...5.8

Del.quantity cm3/: 2.2...2.6

100H.: (1.9...2.9)

Dispersion cm3/: 0.5 C-rod trav.mm : 5.60...5.80 C-rod trav.mm : 2.00 Speed 1/min : 350...410 100H.: (0.7) compensator (LDA,ADA,ALDA) (B) Setting of injection pump with externally-mounted governor 1st version Setting 1/min : 500 hPa : 700 SLEEVE TRAVELS Speed Pressure 1st speed 1/min: 200 Sleeve travel mm: 0.60...0.90 Contr.-rod trav.mm: 11.40...11.50 2nd speed 1/min: 600 Sleeve travel mm: 4.50...5.50 3rd speed 1/min: 670 Measurement Speed 1/min : 500 Sleeve travel mm: 6.40...6.60
4th speed 1/min: 930
Sleeve travel mm: 6.40...6.60
5th speed 1/min: 1025 1st pressure hPa : -C-rod trav.mm : 9.00...9.10 2nd pressure hPa : 430 C-red trav.mm : 10.80...10.90 Sleeve travel mm: 0.00...7.50 3rd pressure hPa : 230 SLEEVE POSITION C-rod trav.mm : 9.50...9.70 Control-lever position FUEL-DELIVERY CHARACTERISTICS Degree: -1 1/min: 1080 Speed Cont.-rod travelmm: 15.20...17.80 1st version Charge press. hPa : -1/min : 700 FULL-LOAD DELIV. AT FULL-LOAD STOP Speed Del.quantity cm3/: 148.0...150.0 1000H.: (145.0...153.0) 1st version Speed 1/min: 700 Charge press. hPa : 700 STARTING FUEL DELIVERY

## LOW IDLE

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Note inst. in remarks column
Test sheet
                    : VOL 10,0 Q4
                                                      SD mark cyl. no. : 1
                    : 12.06.87
Edition
Superceeded
                    : 9.3.87
                                                      BASIC SETTING
                   : ISO-4113
Calibrating oil
                                                      1st speed
                                                                     1/mi: 700
                    : 0 401 846 785
Combination no.
                                                      Contr.-rod trav.mm: 11.90...12.00
Injection pump
Pump designation : PE6P110A320RS3108
                                                      Del.quantity cm3/: 15.2...15.4
EP type number
                   : 0 411 816 727
                                                                    100H.: (14.9...15.7)
Governor
Governor design. : RQV250...1100PA589
                   : 0 421 813 307
                                                                    cm3/:0.4
Governer no.
                                                      Dispersion
                                                                    100H.: (0.7)
Customer-spec. information
                    : VOLVO
Customer
                                                                    1/min: 250.0
                                                      2nd speed
Engine
                    : N10/TD101GB
                                                      Contr.-rod trav. m: 4.1...4.3
                                                      Del.quantity cm3/: 1.7...2.1
                                                                    100H.: (1.4...2.3)
cm3/: 0.3
TEST BENCH REQUIREMENTS
                                                      Dispersion
Calibrating-oil inlet temp. C
                                                                    100H.: (0.6)
                    : 38...42
                                                      (B) Setting of injection pump with
                                                          externally-mounted governor
Overflow valve
                    : 1 417 413 025
                                                      SLEEVE TRAVELS
                                                      1st speed 1/min: 250
Inlet press., bar : 1.50
                                                        Sleeve travel mm: 1.20...1.30
                                                      2nd speed 1/min: 450
Sleeve travel mm: 3.70...4.10
3rd speed 1/min: 700
Sleeve travel mm: 6.40...6.60
Calibrating nozzle-holder
              : 0 681 343 009
 assembly
Opening
 pressure, bar : 172...175
                                                      4th speed 1/min: 1000
                                                        Sleeve travel mm: 6.40...6.60
                                                      5th speed 1/min: 1160
Test inj. tubing : 1 680 750 015
                                                        Sleeve travel mm: 8.20...8.40
                                                      SLEEVE POSITION
Outside diameter
x Wall thickness
                                                      Control-lever position
                                                                   Degree: -1
1/min: 1180
                   : 6.00x1.50x600
x Length mm
(A) Injection pump setting values
                                                      Cont.-rod travelmm: 15.20...17.80
    Insp. values in parentheses
Set constant delivery quant.
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                      1st version
START OF DELIVERY
                                                                    1/min: 700
                                                      Speed
                                                      Charge press. hPa : 900
Test pressure, bar: 25...27
                                                      Del.quantity cm3/: 152.0...154.0
1000H.: (149.0...157.0)
Dispersion cm3/: 4.00
Prestroke mm
                    : 3.00...3.10
                    : (2.95...3.15)
Contr.-rod trav.mm: 9.00...12.00
                                                                   1000H.: (7.50)
Cam sequence : 1-5-3-6-2-4
                                                      HIGHEST RATED SPEED
                                                      1st version
A15
```

Control-lever position degrees: 59...67 Testing: 1st c-rod trav.mm : 10.90 1/min : 1160...1170 Speed 2nd c-rod trav.mm: 4.00 1/min : 1215...1245 Speed 1/min : 1350 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 4...12 Testing: 1/min : 100 Speed C-rod trav.mm min : 5.60 1/min : 250 Speed C-rod trav.mm : 4.10...4.30 : 2.00 C-rod trav.mm 1/min : 310...370 Speed compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed hPa : 900 Pressure Contr.-rod trav.mm: 11.90...12.00 Measurement 1/min : 500 Speed 1st pressure hPa : -C-rod trav.mm : 10.10...10.20 : 550 2nd pressure hPa : 11.70...11.80 C-rod trav.mm : 350 3rd pressure hPa C-rod trav.mm : 10.40...10.60 FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900 1/min : 1000 Speed Del.quantity cm3/: 146.0...150.0 1000H.: (143.0...153.0) Charge press. hPa : -1/min : 700 Speed Del.quantity cm3/: 116.0...119.0 1000H.: (113.5...121.5) STARTING FUEL DELIVERY

Del.quantity cm3/: 170.0...200.0 1000H.: (170.0...200.0)

LOW IDLE

1/min : 250 Speed Contr.-rod trav.mm: 4.10...4.30 Del.quantity cm3/ : 17.0...21.0

1000H.: (14.5...23.5) cm3/: 3.00 1000H.: (6.00) Dispersion

Remarks:

Speed

1/min : 100

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column : SCA 9.0 E : 12.09.86 Test sheet Edition Edition Superceeded Calibrating oil : ISO-4113 : 0 401 846 804 Combination no. Injection pump : PE6P120A320RS3141 Pump designation EP type number : 0 411 826 744 Governor Governor design. : RQV200...1100PA729-1 Governer no. : 0 421 813 470 Customer-spec. information : SAAB-SCANIA Customer : DS9 02 Engine TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Calibrating nozzle-holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Perforated-plate diameter mm : 0,8 Test inj. tubing : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.5Cx6GC x Length mm (A) Injection pump setting values

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_\_

START OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-5- 3- 6- 2- 4 HIGHEST RATED SPEED 1st version Control-lever position degrees: 59...67 SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Testing: 1st c-rod trav.mm : 9.40 1/min: 1140...1150 Speed SD mark cyl. no. : 1 2nd c-rod trav.mm : 4.00 1/min : 1235...1265 BASIC SETTING Speed 4th speed 1/min : 1350 C-rod trav.mm : 0.00...1.00 1st speed 1/mi: 700 Contr.-rod trav.mm: 10.40...10.50 LOWEST RATED SPEED I Control-lever position degrees: 3...11 Del.quantity cm3/: 13.2...13.4 100H<sub>3</sub>: (13.0...13.6) Testing: 1/min : 100 Speed C-rod trav.mm min : 5.90 Dispersion cm3/:0.6Speed 1/min : 225 C-rod trav.mm : 4.40...4.60 C-rod trav.mm : 2.00 100H.: (0.9) 1/min : 290...350 2nd speed 1/min: 225.0 Speed Contr.-rod trav. m: 4.4...4.6 Del.quantity cm3/: 1.2...1.6 FUEL-DELIVERY CHARACTERISTICS 100H.: (-) Speed 1/min : 1100 cm3/: 0.2 100H.: (0.4) Del.quantity cm3/: 143.0...151.0 Dispersion 1000H.: (141.0...153.0) (B) Setting of injection pump with externally-mounted governor STARTING FUEL DELIVERY SLEEVE TRAVELS 1st speed 1/min: 225 1/min : 100 Speed Sleeve travel mm: 0.60...0.70 Del.quantity cm3/: 290.0...340.0 2nd speed 1/min: 350
Sleeve travel mm: 2.20...2.70
3rd speed 1/min: 425
Sleeve travel mm: 3.60...4.20 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 LOW IDLE 1/min: 1150 4th speed Sleeve travel mm: 8.40...8.60 1/min : 225 Speed **5th speed** 1/min: 1250 Contr.-rod trav.mm: 4.40...4.60 Sleeve travel mm: 9.30...9.60 Remarks: ADDITIONAL INFORMATION SLEEVE POSITION Control-lever position Degree: -1 17min: 1150 Speed Cont.-rod travelmm: 15.20...17.80 Delivery-valve spring pre-tension FULL-LOAD DELIV. AT FULL-LOAD STOP 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Check and set without ROBO diaphragam 1st version 1/min: 700 Speed Del.quantity cm3/: 132.0...134.0 1000H.: (130.0...136.0) Dispersion cm3/: 6.00 1000H.: (9.00) For comb. with letter index see VDT-I-400/116. A18

For sealing see VDT-I-400/117.

Test specifications approved by Scania on December 18, 1986 Start of delivery - engine: 17° before TDC Firing sequence of engine: 1-5-3-6-2-4.

```
: 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                       Cam sequence
Note inst. in remarks column
                    : SCA 9,0 E 1
: 26.03.87
                                                       SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300
Tolerance + - 0 : 0.50 (0.75)
Test sheet
Edition
Superceeded
                    : ISO-4113,
Calibrating oil
                                                       SD mark cyl. no. : 1
                    : 0 401 846 804 Q
                                                       BASIC SETTING
Combination no.
Injection pump
                                                       1st speed
                                                                       1/mi: 700
Pump designation
                    : PE6P120A320RS3141Q
                                                       Contr.-rod trav.mm: 10.00...10.10
EP type number
                    : 0 411 826 744
Governor
Governor design. : RQV200...1100PA729-1
                                                       Del.quantity cm3/: 12.8...13.0
                    : 0 421 813 470
Governer no.
                                                                      100H.: (12.5...13.3)
Customer-spec. information
                                                                      cm3/:0.6
Customer
                    : SAAB-SCANIA
                                                       Dispersion
                    : DS9 02
                                                                      100H.: (0.9)
Engine
TEST BENCH REQUIREMENTS
                                                       2nd speed
                                                                      1/min: 225.0
                                                       Contr.-rod trav. m: 4.4...4.6
                                                       Del.quantity cm3/: 1.1...1.5
100H.: (-)
Dispersion cm3/: 0.2
100H.: (0.4)
Calibrating-oil inlet temp. °C
                    : 38...42
Overflow valve
                    : 1 417 413 025
                                                        (B) Setting of injection pump with
                                                            externally-mounted governor
Inlet press., bar : 1.50
                                                       SLEEVE TRAVELS
Calibrating nozzle-holder
                : 1 688 901 019
                                                       1st speed 1/min: 225
 assembly
                                                       Sleeve travel mm: 0.60...0.70
2nd speed 1/min: 350
Sleeve travel mm: 2.20...2.70
Opening
                    : 207...210
 pressure, bar
                                                       3rd speed 1/min: 425
Sleeve travel mm: 3.60...4.20
Perforated-plate
                                                       4th speed
                                                                     1/min: 1150
 diameter mm
                    : 0,8
                                                          Sleeve travel mm: 8.40...8.60
                                                       5th speed 1/min: 1250
                                                          Sleeve travel mm: 9.30...9.60
                    : 1 680 750 015
Test inj. tubing
                                                       SLEEVE POSITION
Outside diameter
x Wall thickness
                                                       Control-lever position
x Length mm
                    : 6.00x1.50x600
                                                                     Degree: -1
                                                                      17min: 1150
                                                       Speed
                                                       Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values ____
                                                       1st version
                                                                      1/min: 700
START OF DELIVERY
                                                       Speed
                                                       Del.quantity cm3/: 128.0...130.0
1000H.: (125.0...133.0)
Test pressure, bar: 25...27
                    : 5.00...5.10
                                                       Dispersion cm3/ : 6.00
Prestroke mm
                    : (4.95...5.15)
                                                                     1000H.: (9.00)
Contr.-rod trav.mm: 9.00...12.00
A20
```

HIGHEST RATED SPEED 1st version Control-lever position degrees: 59...67 Testing: 1st c-rod trav.mm : 9.40 Speed 1/min: 1140...1150 2nd c-rod trav.mm : 4.00 1/min : 1235...1265 Speed 4th speed 1/min: 1350 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 3...11 Testing: 1/min : 100 Speed C-rod trav.mm min : 5.90 Speed 1/min : 225 C-rod trav.mm : 4.40...4.60 C-rod trav.mm : 2.00 1/min : 290...350 Speed FUEL-DELIVERY CHARACTERISTICS Speed 1/min : 1100 Del.quantity cm3/: 132.0...140.0 1000H.: (130.0...142.0) STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 290.0...340.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 LOW IDLE Speed 1/min : 225 Contr.-rod trav.mm: 4.40...4.60 Del.quantity cm3/ : 11.0...15.0 1000H.: (-) Remarks: Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on December 18, 1986
Start of delivery - engine: 17° before TDC
Firing sequence of engine: 1-5-3-6-2-4.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

Cam sequence : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) : SCA 9.0 G : 09.03.87 Edition Superceeded Calibrating oil : ISO-4113 SD mark cyl. no. : 1 Combination no. : 0 401 846 815 BASIC SETTING 1/mi: 700 Injection pump 1st speed Pump designation : PE6P12OA32ORS3171 Contr.-rod tray.mm: 9.00...9.10 Ef type number : 0 411 826 749 Governor Governor design. : RQ750PA796 Del.quantity cm3/: 11.2...11.4 : 0 421 801 345 Governer no. 100H.: (10.9...11.7) Customer-spec. information : SAAB-SCANIA cm3/:0.5Customer Dispersion : DN9 41 100H.: (0.8) Engine TEST BENCH REQUIREMENTS SLEEVE POSITION Control-lever position Calibrating-oil inlet temp. °C Degree: 45...47 17min: 600 : 38...42 Speed Cont.-rod travelmm: 15.20...17.80 Overflow valve 1 417 413 025 FULL-LOAD DELIV. AT FULL-LOAD STOP 1st version Inlet press., bar : 1.50 1/min: 700 Speed Del.quantity cm3/: 112.0...114.0 Calibrating nozzle-holder : 1 688 901 019 1000H.: (109.0...117.0) assembly cm3/ : 5.00 Dispersion 1000H.: (8.00) Opening pressure, bar : 207...210 HIGHEST RATED SPEED Perforated-plate 1st version diameter mm : 0.8 Control-lever position degrees: 14...22 Test inj. tubing : 1 680 750 015 Testing: 1st c-rod trav.mm : 8.00 1/min : 750...755 Outside diameter Speed 2nd c-rod trav.mm : 4.00 Speed 1/min : 769...782 x Wall thickness Speed : 6.00x1.50x600 x Length mm 1/min : 850 4th speed C-rod trav.mm : 0.00...1.00 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_ STARTING FUEL DELIVERY START OF DELIVERY Speed 1/min: 100 Del.quantity cm3/: 290.0...340.0 1000H.: (-) Test pressure, bar: 25...27 Prestroke mm : 5.00...5.10 Contr.-rod trav.mm: 20.00...21.00 : (4.95...5.15) Contr.-rod trav.mm: 9.00...12.00 A22

HIGH IDLE
Contr.-rod trav.mm: 4.60...4.80
Dispersion cm3/: 4.00
1000H.: (7.00)

Remarks:
APPLICATION
Generator

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

for sealing see VDT-I-400/117.

Test specifications approved by Scania on December 6, 1986 Engine start of delivery: 18° BTDC

Firing sequence of engine: 1-5-3-6-2-4.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                           : 1-5-3-6-2-4
                                                      Cam sequence
Note inst. in remarks column
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Test sheet
                    : SCA 9.0 G 1
: 09.03.87
Edition
Superceeded
Calibrating oil
                    : ISO-4113
                                                      SD mark cyl. no. : 1
Combination no.
                    : 9 401 846 816
                                                      BASIC SETTING
Injection pump
                                                                      1/mi: 850
                                                       1st speed
                   : PE6P12OA32ORS3171
Pump designation
EP type number
                    : 0 411 826 749
                                                      Contr.-rod trav.mm: 9.00...9.10
Governor
Governor design. : RQ900PA796-1
Governer no. : 0 421 801 34
                                                      Del.quantity cm3/: 12.0...12.2
                   : 0 421 801 346
                                                                     100H.: (11.7...12.5)
Customer-spec. information
Customer
                   : SAAB-SCANIA
                                                      Dispersion
                                                                     cm3/:0.5
Engine
                    : DN 9 41
                                                                     100H.: (0.8)
TEST BENCH REQUIREMENTS
                                                      SLEEVE POSITION
                                                      Control-lever position
                                                                    Degree: 45...47
1/min: 600
Calibrating-oil inlet temp. °C
                    : 38...42
                                                      Cont.-rod travelmm: 15.20...17.80
Overflow valve
                    : 1 417 413 025
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
Inlet press., bar : 1.50
                                                      1st version
                                                      Speed
                                                                     1/min: 850
                                                      Del.quantity cm3/: 120.0...122.0
1000H.: (117.0...125.0)
Dispersion cm3/: 5.00
Calibrating nozzle-holder
                   : 1 688 901 019
 assembly
Opening
                                                                    1000H.: (8.00)
                   : 207...210
 pressure, bar
                                                      HIGHEST RATED SPEED
                                                      1st version
Perforated-plate
 diameter mm
                    : 0,8
                                                      Control-lever
                                                       position degrees: 15...23
                                                      Testing:
Test inj. tubing : 1 680 750 015
                                                      1st c-rod trav.mm : 8.00
                                                      Speed 1/min: 900...905
2nd c-rod trav.mm: 4.00
Outside diameter
x Wall thickness
                                                                    1/min: 923...938
                   : 6.00x1.50x600
x Length mm
                                                         Speed
                                                                    1/min : 1000
                                                       4th speed
                                                        C-rod trav.mm : 0.00 ..1.00
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      STARTING FUEL DELIVERY
    per values ____
START OF DELIVERY
                                                      Speed
Test pressure, bar: 25...27
                                                                    1/min : 100
                                                      Del.quantity cm3/: 290.0...340.0
                                                      1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00
Prestroke mm
                    : 5.00...5.10
                    : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
A24
```

HIGH IDLE

Contr.-rod trav.mm: 4.50...4.70 Dispersion cm3/: 4.00 1000H.: (7.00)

Remarks:

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on December 6, 1986 Engine start of delivery: 18° BTDC

Firing sequence of engine: 1-5-3-6-2-4.

: 3.60...3.70 : (3.55...3.75) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Contr.-rod trav.mm: 9.00...12.00 Note inst. in remarks column Cam sequence : 1- 5- 3- 6- 2-: VOL 12.2 A : 12.06.87 Test sheet Edition Superceeded SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300 Tolerance + - 0.50 (0.75) Calibrating oil : ISO-4113 Combination no. : 0 401 846 827 SD mark cyl. no. : 1 Injection pump Pump designation : PE6P12OA32ORS3178 BASIC SETTING EP type number : 0 411 826 752 Governor 1st speed 1/mi: 700 Governor design. : RQV250...950PA657-11 Governer no. : 0 421 813 568 Contr.-rod trav.mm: 11.70...11.80 Customer-spec. information Del.quantity cm3/: 21.8...22.0 Customer : VOLVO 100H.: (21.5...22.3) Engine : TD122F cm3/:0.5Dispersion : 257.0 1st version kW 1/min: 1900 100H.: (0.9) Speed 2nd speed 1/min: 250.0
Del.quantity cm3/: 1.8...2.3
100H.: (1.5...2.6)
Dispersion cm3/: 0.5 TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 100H.: (0.7) Overflow valve : 1 417 413 025 SLEEVE POSITION Control-lever position Degree: -1 Inlet préss., bar : 1.50 Speed 1/min: 1040 Cont.-rod travelmm: 15.20...17.80 Calibrating nozzle-holder : 1 688 901 019 assembly FULL-LOAD DELIV. AT FULL-LOAD STOP Opening pressure, bar : 207...210 1st version 1/min: 700 Speed Charge press. hPa: 700
Del.quantity cm3/: 218.5...220.5
1000H.: (215.5...223.5)
Dispersion cm3/: 5.00 Perforated-plate diameter mm : 0,8 1000H.: (9.00) : 1 680 750 067 Test inj. tubing Outside diameter HIGHEST RATED SPEED x Wall thickness 1st version : 6.00x1.50x1000 Control-lever x Length mm position degrees: 58...66 (A) Injection pump setting values Testing: Insp. values in parentheses Set constant delivery quant. 1st c-rod trav.mm : 10.70 1/min : 980...990 per values \_\_\_\_ Speed 2nd c-rod trav.mm : 4.00 1/min : 1040...1070 START OF DELIVERY Speed 1/min : 1160 Test pressure, bar: 25...27 4th speed C-rod trav.mm : 0.00...1.00 A26

```
LOWEST RATED SPEED I
Control-lever
 position degrees: 6...14
Testing:
              1/min : 100
Speed
C-rod trav.mm min : ?
             1/min : 250
Speed
C-rod trav.mm
CONSTANT REGULATION
              1/min : 250...400
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
             1/min : 500
hPa : 700
Speed
Pressure
Contr.-rod trav.mm: 11.70...11.80
Measurement
             1/min : 500
Speed
1st pressure hPa
  C-rod trav.mm
                   : 430
2nd pressure hPa
C-rod trav.mm : 11.50...11.60
3rd pressure hPa : 75
  C-rod trav.mm
FUEL-DELIVERY CHARACTERISTICS
Charge press. hPa : -
             1/min : 700
Speed
Del.quantity cm3/: 168.0...170.0
              1000H.: (165.0...173.0)
STARTING FUEL DELIVERY
             1/min : 100
Speed
Contr.-rod trav.mm: 20.00...21.00
LOW IDLE
Speed
             1/min : 250
Del.quantity cm3/: 18.0...23.0
1000H:: (15.0...26.0)
Dispersion cm3/: 5.00
1000H:: (7.00)
Remarks:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                           : 2.60...2.70
: (2.55...2.75)
                                                        Prestroke mm
Note inst. in remarks column
                                                        Contr.-red trav.mm: 9.00...12.00
Test sheet
                    : VOL 12,1 A1 : 02.06.87
                                                        Cam sequence : 1- 5- 3- 6- 2- 4
Edition
Superceeded
                    : 12.9.86
Calibrating oil
                  : ISO-4113
                                                        SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Combination no.
                    : 0 401 846 828
Injection pump
                                                        SD mark cyl. no. : 1
Pump designation : PE6P120A320RS3165
EP type number
                    : 0 411 826 747
                                                        BASIC SETTING
Governor
                    : RQV300...1025PA657-1
Governor design.
                                                                        1/mi: 700
                                                        1st speed
                    : 0 421 813 571
                                                        Contr.-rod trav.mm: 11.60...11.70
Governer no.
                                                        Del.quantity cm3/: 19.7...20.0
Customer-spec. information
Customer
                    : VOLVO
                                                                      100H.: (19.4...20.3)
Engine
                    : TID 121G
                                                        Dispersion
                                                                      cm3/:0.5
1st version kW : 243.0
              1/min: 2050
Speed
                                                                      100H.: (0.9)
                                                       2nd speed 1/min: 300.0
Contr.-rod trav. m: 3.7...3.9
Del.quantity cm3/: 2.2...2.6
Dispersion cm3/: 0.5
100H.: (0.7)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                    : 38...42
Overflow valve
                     : 1 417 413 025
                                                        (B) Setting of injection pump with
                                                            externally-mounted governor
Inlet press., bar : 1.50
                                                        SLEEVE TRAVELS
                                                       1st speed 1/min: 300
Sleeve travel mm: 1.70...1.80
2nd speed 1/min: 370
Sleeve travel mm: 2.60...2.90
Calibrating nozzle-holder
             : 1 688 901 019
 assembly
Opening.
                    : 207...210
                                                        3rd speed
                                                                     1/min: 430
 pressure, bar
                                                          Sleeve travel mm: 3.60...3.80
                                                        4th speed 1/min: 1080
Perforated-plate
                                                          Sleeve travel mm: 6.80...7.00
 diameter mm
                     : 0,8
                                                        5th speed 1/min: 1160
                                                          Sleeve travel mm: 8.10...8.30
                    : 1 680 750 067
Test inj. tubing
                                                        SLEEVE POSITION
Outside diameter
                                                        Control-lever position
                                                                     Degree: -1
1/min: 1070
x Wall thickness
                   : 6.00x1.50x1000
x Length mm
                                                        Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values ____
                                                       1st version
                                                                      1/min: 700
                                                        Speed
START OF DELIVERY
                                                        Charge press. hPa : 1000
Test pressure, bar: 25...27
A28
```

Del.quantity cm3/: 197.0...200.0 1000H.: (194.0...203.0) cm3/ : 5.00 Dispersion 1000H.: (9.00) HIGHEST RATED SPEED 1st version Control-lever position degrees: 53...61 Testing: 1st c-rod trav.mm : 10.60 Speed 1/min: 1085...1095 2nd c-rod trav.mm : 4.00 1/min : 1160...1190 Speed 1/min : 1300 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 6...14 Testing: 1/min : 100 Speed C-rod trav.mm min : 5.20 Speed 1/min: 300 C-rod trav.mm : 3.70...3.90 CONSTANT REGULATION 1/min : 300...400 Speed compensator (LDA, ADA, ALDA) 1st version Setting 1/min : 500 Speed hPa : 1000 Pressure Contr.-rod trav.mm: 11.60...11.70 Measurement 1/min : 500 Speed 1st pressure hPa : 10.30...10.40 C-rod trav.mm : 300 2nd pressure hPa : 11.40...11.50 C-rod trav.mm 3rd pressure hPa : 150 : 10.60...10.80 C-rod trav.mm FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : -Speed 1/min : 700 Del.quantity cm3/: 166.0...169.0 1000H.: (163.0...172.0) STARTING FUEL DELIVERY

Speed 1/min: 100
Del.quantity cm3/: 240.0...280.0
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 300
Contr.-rod trav.mm: 3.70...3.90
Del.quantity cm3/ : 22.0...26.0
Dispersion cm3/ : 5.00

Dispersion cm3/: 5.00 1000H.: (7.00)

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

```
Prestroke mm : 4.00...4.10 : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                       Cam sequence : 6- 5- 5- 2- 4- 1
Test sheet
Edition
Superceeded
                   : MB 11,0 $ 3
                   : 09.03.87
                   : 12.9.86
                                                       SD ang. spacing CS: 0-45-120-165-240-285 Tolerance + - : 0.50 (0.75)
Calibrating oil : ISO-4113
                    : 0 401 846 830
Combination no.
                                                       SD mark cyl. no. : 6
Injection pump
Pump designation : PE6P110A320LS3835
                                                       BASIC SETTING
EP type number : 0 411 816 749
                                                                     1/mi: 950
Governor
                                                        1st speed
Governor design. : RQV300...950PA829K
                                                       Contr.-rod trav.mm: 13.10...13.20
Governer no. : 0 421 815 166
                                                       Delaquantity cm3/: 12.6...12.8
Customer-spec. information
Customer
                    : DAIMLER-BENZ
                                                                      100H.: (12.3...13.0)
Engine
                    : 0M441
                                                       Dispersion
                                                                      cm3/:0.4
1st version kW : 150.0
              1/min: 1900
                                                                      100H.: (0.8)
Speed
TEST BENCH REQUIREMENTS
                                                       2nd speed
                                                                      1/min: 300.0
                                                       Contr.-rod trav. m: 8.8...8.9
Del.quantity cm3/: 1.5...2.1
100H.: (1.2...2.3)
Dispersion cm3/: 0.4
100H.: (0.7)
Calibrating-oil inlet temp. °C
                    : 38...42
Overflow valve
                    : 1 417 413 025
                                                        (B) Setting of injection pump with
Inlet press., bar : 1.50
                                                            externally-mounted governor
                                                       SLEEVE TRAVELS
Over flow
                                                       1st speed 1/min: 300
Sleeve travel mm: 1.10...1.30
2nd speed 1/min: 500
 quantity min. 1/h: 100...120
Calibrating nozzle-holder
                   : 0 681 343 009
                                                          Sleeve travel mm: 3.20...3.40
 assembly
                                                                     1/min: 800
                                                       3rd speed
                                                          Sleeve trave: mm: 5.90...6.10
Opening
 pressure, bar : 172...175
                                                       4th speed 1/min: 1000
                                                          Sleeve travel mm: 8.00...8.40
                                                       5th speed 1/min: 1125
Sleeve travel mm: 9.60...10.00
Test inj. tubing : 1 680 750 015
                                                       SLEEVE POSITION
Outside diameter
                                                       Control-lever position
x Wall thickness
                    : 6.00x1.50x600
x Length mm
                                                                     Degree: -1
                                                       Speed
                                                                     17min: 975
                                                       Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                       1st version
                                                       Speed
                                                                      1/min: 950
START OF DELIVERY
                                                       Del.quantity cm3/: 126.0...128.0
Test pressure, bar: 25...27
                                                                     1000H.: (123.5...130.5)
802
```

```
Dispersion cm3/ : 4.00
             1000H.: (8.00)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 57...65
Testing:
1st c-rod trav.mm : 12.10
             1/min : 990...1000
  Speed
2nd c-rod trav.mm : 4.00
             1/min : 1080...1110
  Speed
             1/min : 1300
4th speed
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 9...17
Testing:
             1/min : 100
Speed
C-rod trav.mm min: 10.60
Speed 1/min: 300
                  : 8.80...9.00
C-rod trav.mm
CONSTANT REGULATION
             1/min : 300...450
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min: 975
  C-rod trav.mm : 13.10...13.20
             1/min : 600
2nd speed
  C-rod trav.mm : 12.90...13.10
3rd speed 1/min : 750
  C-rod trav.mm : 13.10...13.30
SWITCH-OVER POINT
             1/min : 220 (240)
Speed
FUEL-DELIVERY CHARACTERISTICS
             1/min : 600
Speed
Del.quantity cm3/: 117.0...120.0
1000H.: (114.0...123.0)
Dispersion cm3/: 6.00
1000H.: (9.00)
Speed 1/min: 750
Del.quantity cm3/: 120.0...124.0
1000H.: (117.0...127.0)
              cm3/:6.00
Dispersion
             1000H.: 9.00
STARTING FUEL DELIVERY
Speed
             1/min : 100
Del.quantity cm3/: 120.0...140.0
             1000H.: (116.0...144.0)
```

Remarks:

в03

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : DAF 11,7 D : 12.09.86

Calibrating oil : ISO-4113

Combination no. : 0 401 846 831

Injection pump

Pump designation : PE6P12OA32ORS3183 EP type number : 0 411 826 754

Governor

Governor design. : RQ250/1000PA832 Governer no. : 0 421 801 368

Customer-spec. information Customer : DAF

: WS 270 Engine

1st version kW : 265.0 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

assembly : 1 688 901 019

Opening.

pressure, bar : 207...210

Perforated-plate

: 0,8 diameter mm

Test inj. tubing : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values

START OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 : (3.65...3.85) Prestroke mm LOWEST RATED SPEED I Contr.-rod trav.mm: 9.00...12.00 Setting point w/out aux. spring Cam sequence : 1-5-3-6-2-4 Speed 1/min : 250 Contr.-rod trav.mm: 7.0 Testing: SD ang. spacing  $^{0}$ CS: 0-60-120-180-240-300 Tolerance + -  $^{0}$ : 0.50 (0.75) 1/min : 100 Speed C-rod trav.mm min: 8.50 Speed 1/min: 250 C-rod trav.mm : 6.90...7.10 C-rod trav.mm : 2.00 BASIC SETTING mm : 2.00 1/min : 350...390 1/mi: 850 1st speed Speed Contr.-rod trav.mm: 13.00...13.10 TORQUE CONTROL Dimension a mm Del.quantity cm3/ : 21.7...21.9 Torque-control curve - 1st version 1st speed 1/min: 850 C-rod trav.mm : 13.30...13.40 2nd speed 1/min : 1000 100H.: (21.4...22.2) C-rod trav.mm : 13.20...13.40 Dispersion cm3/:0.5100H.: (0.9) compensator (LDA, ADA, ALDA) 2nd speed 1/min: 250.0 Contr.-rod trav. m: 6.7...6.9 1st version Del.quantity cm3/: 1.6...2.2 100H:: (1.3...2.5) Dispersion cm3/: 0.8 100H:: (1.2) Setting 1/min : 600 Speed Pressure hPa : 1000 Contr.-rod trav.mm: 13.00...13.10 SLEEVE POSITION Measurement 1/min : 600 Control-lever position Speed Degree: -1 17min: 550 1st pressure hPa : -Cont.-rod travelmm: 15.60...16.40 C-rod trav.mm : 10.10...10.30 2nd pressure hPa : 650 C-rod trav.mm : 12.40...12.50 3rd pressure hPa : 390\_ FULL-LOAD DELIV. AT FULL-LOAD STOP C-rod trav.mm : 10.70...11.00 1st version 1/min: 850 Speed Charge press. hPa: 1000 FUEL-DELIVERY CHARACTERISTICS Del.quantity cm3/: 217.0...219.0 1000H.: (214.0...222.0) Dispersion cm3/: 5.00 1000H.: (9.00) Charge press. hPa : -1/min : 600 Speed Del.quantity cm3/: 144.0...146.0 1000H.: (141.0...149.0) HIGHEST RATED SPEED STARTING FUEL DELIVERY Setting point: Speed 1/min : 550 Contr.-rod trav.mm: 16.0 Speed 1/min : 100 Del.quantity cm3/: 260.0...300.0 1000H.: (256.0...304.0) Testing: 1st c-rod trav.mm : 12.00 Speed 1/min : 1035...1050 2nd c-rod trav.mm : 4.00 LOW IDLE Speed 1/min: 1160...1190 Speed 1/min: 250 4th speed 1/min : 1250 Contr.-rod trav.mm: 6.90...7.10 C-rod trav.mm : 0.00...1.00

**B05** 

Del.quantity cm3/: 14.0...20.0 1000H.: (11.0...23.0) Dispersion cm3/: 8.00 1000H.: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11.7 D1 Edition : 15.05.87 Superceeded : -

Calibrating oil : ISO-4113

Combination no. : 0 401 846 831

Injection pump

Pump designation : PE6P12OA32ORS3183-1Y

EP type number : 0 411 826 765

Governor

Governor design. : RQ250/1000PA832 Governmen no. : 0 421 801 368

Customer-spec. information Customer : DAF

: WS 282 Engine

1st version kW : 282.0 1/min: 2000 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Perforated-plate

: 0,8 diameter mm

Test inj. tubing : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

```
Prestroke mm
                   : 3.70...3.80
                   : (3.65...3.85)
                                                    LOWEST RATED SPEED I
                                                    Setting point w/out aux. spring
Speed 1/min: 250
Contr.-rod trav.mm: 9.00...12.00
                   : 1-5-3-6-2-4
Cam sequence
                                                    Contr.-rod trav.mm: 7.0
                                                    Testing:
SD ang. spacing ^{\circ} CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                                 1/min : 100
                                                    Speed
                                                    C-rod trav.mm min: 8.50
                                                    Speed
                                                                 1/min : 250
                                                    C-rod trav.mm : 6.90...7.10
C-rod trav.mm : 2.00
BASIC SETTING
                                                                 nm : 2.00
1/min : 350...390
               1/mi: 850
1st speed
                                                    Speed
Contr.-rod trav.mm: 13.10...13.20
                                                    TORQUE CONTROL
                                                    Torque-control curve - 1st version
                                                    1st speed 1/min: 850
Del.quantity cm3/ : 21.9...22.1
                                                      C-rod trav.mm : 13.30...13.40
              100H.: (21.6...22.4)
                                                    2nd speed 1/min : 1000
                                                      C-rod trav.mm : 13.20...13.40
              cm3/:0.5
Dispersion
                                                     compensator (LDA,ADA,ALDA)
              100H.: (0.9)
2nd speed
              1/min: 250.0
                                                    1st version
Contr.-rod trav. m: 6.9...7.1
                                                    Setting
Del.quantity cm3/: 1.4...2.0
                                                                 1/min : 600
                                                    Speed
              100H.: (1.1...2.3)
                                                                 hPa : 1000
                                                    Pressure
              cm3/: 0.8
100H.: (1.2)
                                                    Contr.-rod trav.mm: 13.10...13.20
Dispersion
                                                    Measurement
                                                                 1/min : 600
SLEEVE POSITION
                                                    Speed
Control-lever position
            Degree: -1
1/min: 550
                                                    1st pressure hPa : -
                                                                       : 10.10...10.30
                                                      C-rod trav.mm
                                                    2nd pressure hPa : 650
Cont.-rod traveimm: 15.60...16.40
                                                                       : 12.40...12.50
                                                      C-rod trav.mm
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                    3rd pressure hPa : 390
                                                      C-rod trav.mm
                                                                       : 10.70...11.00
1st version
Speed
              1/min: 850
                                                    FUEL-DELIVERY CHARACTERISTICS
Charge press. hPa: 1000
                                                    Charge press. hPa : -
Del.quantity cm3/: 219.0...221.0
1000H.: (216.0...224.0)
Dispersion cm3/: 5.00
1000H.: (9.00)
                                                                 1/min : 600
                                                    Speed
                                                    Del.quantity cm3/: 144.0...146.0
                                                                 1000H.: (141.0...149.0)
                                                    STARTING FUEL DELIVERY
HIGHEST RATED SPEED
Setting point:
                                                                 1/min : 100
           1/min : 550
Speed ]
                                                    Speed
                                                    Del.quantity cm3/: 260.0...300.0
Contr.-rod trav.mm: 16.0
                                                                 1000H.: (256.0...304.0)
Testing:
                                                    LOW IDLE
1st c-rod trav.mm : 12,10
           1/min : 1035...1050
  Speed
                                                                1/min : 250
2nd c-rod trav.mm : 4.00
                                                    Speed
 Speed
           1/min : 1120...1150
                                                    Contr.-rod trav.mm: 6.90...7.10
                                                    Del.quantity cm3/: 14.0...20.0
4th speed
           1/min : 1250
                                                                 1000H.: (11.0...23.0)
  C-rod trav.mm : 0.00...1.00
```

**B08** 

Dispersion cm3/: 8.00 1000H.: (12.00)

Note inst. in remarks column

Test sheet Edition Superceeded : MB 11.0 L 1 : 05.11.86

Calibrating oil : ISO-4113

Combination no. : 0 401 846 832

Injection pump

Pump designation : PE6P12OA320LS3815-11

EP type number : 0 411 826 826

Governor

Governor design. : RQ300/1050PA840 Governer no. : 0 421 801 374

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 441 A Engine

1st version kW : 191.0 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-cil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 1 688 901 019

Opening |

pressure, bar : 207...210

Perforated-plate

diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

Speed 1/min: 600 Charge press. hPa: 1100 Del.quantity cm3/: 190.0...192.0 1000H.: (187.0...195.0) Dispersion cm3/: 5.00 START OF DELIVERY Test pressure, bar: 25...27 : 3.60...3.70 Prestroke mm : (3.55...3.75) 1000H.: (9.0c. Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 6- 3- 5- 2- 4- 1 HIGHEST RATED SPEED Setting point: SD ang. spacing CS: 0-45-120-165-240-285 Tolerance + - : 0.50 (0.75) Speed 1/min: 600 Contr.-rod trav.mm: 20.0 SD mark cyl. no. : 6 Testing: 1st c-rod trav.mm : 11.40 1/min : 1095...1110 BASIC SETTING Speed 2nd c-rod trav.mm : 4.00 1/min : 1200...1230 1st speed 1/mi: 600 Speed 1/min : 1350 4th speed Contr.-rod trav.mm: 13.10...13.30 C-rod trav.mm : 0.00...1.50 Del.quantity cm3/: 19.0...19.2 LOWEST RATED SPEED I Setting point w/out aux. spring 100H.: (18.7...19.5) 1/min : 325 Speed Contr.-rod trav.mm: 5.5 Dispersion cm3/:0.5Testing: 100H.: (0.9) 1/min : 100 Speed C-rod trav.mm min : 6.90 Speed 1/min: 325 C-rod trav.mm: 5.40...5.60 C-rod trav.mm: 2.00 2nd speed 1/min: 325.0 Contr.-rod trav. m: 5.4...5.6 Del.quantity cm3/: 1.4...2.2 1/min: 340...380 100H.: (1.1...2.5) Speed cm3/: 0.8 100H.: (1.2) Dispersion TORQUE CONTROL Dimension a mm : 0.90 2nd speed 1/min: 1050 C-rod trav.mm: 12.30...12.50 3rd speed 1/min: 700 (B) Setting of injection pump with externally-mounted governor C-rod trav.mm : 13.50...13.70 SLEEVE TRAVELS 1st speed 1/min: 300 Sleeve travel mm: 2.00...2.20 compensator (LDA, ADA, ALDA) 2nd speed 1/min: 600
Sleeve travel mm: 5.90...6.10
3rd speed 1/min: 900
Sleeve travel mm: 6.60...6.80 1st version Setting 4th speed 1/min: 1100 Sleeve travel mm: 7.00...7.40 1/min : 600 Speed hPa : 700 Pressure Contr.-rod trav.mm: 13.10...13.30 5th speed 1/min: 1175 Sleeve travel mm: 9.30...10.00 Measurement 1/min : 600 SLEEVE POSITION Speed Control-lever position 1st pressure hPa : 350 Degree: -2 C-rod trav.mm : 11.20...11.40 Speed 17min: 600 2nd pressure hPa : 550 Cont.-rod travelmm: 19.20...20.80 C-rod trav.mm : 12.40...12.60 3rd pressure hPa : 780 FULL-LOAD DELIV. AT FULL-LOAD STOP C-rod trav.mm : 13.20...13.30 4th pressure hPa : 1100 1st version

**B11** 

```
C-rod trav.mm
                    : 13.45...13.55
SWITCH-OVER POINT
Speed
               1/min : 220 (240)
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 1100
Speed 1/min : 1050
Speed 1/min: 1050
Del.quantity cm3/: 184.0...187.0
1000H.: (181.0...190.0)
Dispersion cm3/: 8.00
1000H.: (12.0)
Charge press. hPa: 1100
               1/min : 700
Speed
Del.quantity cm3/: 204.0...208.0
               1000H.: (201.0...211.0)
                cm3/: 8.00
Dispersion
               1000H.: 12.00
Charge press. hPa : -
               1/min : 500
Speed
Del.guantity cm3/: 129.0...131.0
               1000H.: (126.0...134.0)
cm3/: 8.00
Dispersion
               1000H.: (-)
```

## STARTING FUEL DELIVERY

Note inst. in remarks column

Test sheet Edition : MB 11,0 L 2 : 10.12.86

Superceeded

: ISO-4113

Calibrating oil

Combination no. : 0 401 846 832

Injection pump

Pump designation : PE6P12OA32OLS3815-11 : 0 411 826 755 EP type number

Governor

Governor design. : RQ325/1050PA840 Governer no. : 0 421 801 374

Customer-spec. information

: DAIMLER-BENZ Customer

: OM 441 A Engine

1st version kW : 191.0 1/min: 2100 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Perforated-plate

diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY 1/min: 600 Charge press. hPa: 700
Del.quantity cm3/: 190.0...192.0
1000H.: (187.0...195.0)
Dispersion cm3/: 5.00 Test pressure, bar: 25...27 : 3.60...3.70 Prestroke mm : (3.55...3.75) 1000H.: (9.00) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 6- 3- 5- 2- 4- 1 HIGHEST RATED SPEED Setting point: SD ang. spacing CS: 0-45-120-165-240-285 Tolerance + - : 0.50 (0.75) 1/min : 600 Speed Contr.-rod trav.mm: 20.0 SD mark cyl. no. : 6 Testing: 1st c-rod trav.mm : 11.40 1/min : 1095...1110 BASIC SETTING Speed 2nd c-rod trav.mm : 4.00 1/min : 1200...1230 1st speed 1/mi: 600 Speed 1/min : 1350 4th speed Contr.-rod tray.mm: 13.10...13.30 C-rod trav.mm : 0.00...1.50 Del.quantity cm3/ : 19.0...19.2 LOWEST RATED SPEED I Setting point w/out aux. spring 100H.: (18.7...19.5) 1/min : 325 Speed Contr.-rod trav.mm: 5.5 Dispersion cm3/:0.5Testing: 100H.: (0.9) 1/min : 100 Speed C-rod trav.mm min: 6.90 2nd speed 1/min: 325.0 Contr.-rod trav. m: 5.4...5.6 1/min : 325 C-rod trav.mm : 5.40...5.60 C-rod trav.mm : 2.00 Speed 1/min : 340...380 Del.quantity cm3/: 1.4...2.2 100H.: (1.1...2.5) cm3/: 0.8 Dispersion 100H.: (1.2) TORQUE CONTROL Dimension a mm : 0.90 2nd speed 1/min: 1050 C-rod trav.mm: 12.30...12.50 3rd speed 1/min: 700 (B) Setting of injection pump with externally-mounted governor SLEEVE TRAVELS C-rod trav.mm : 13.50...13.70 1st speed 1/min: 300 Sleeve travel mm: 2.00...2.20 compensator (LDA, ADA, ALDA) 2nd speed 1/min: 600 Sleeve travel mm: 5.90...6.10

Srd speed 1/min: 900

Sleeve travel mm: 6.60...6.80

4th speed 1/min: 1100

Sleeve travel mm: 7.00...7.40 1st version Setting 1/min : 600 Speed hPa : 700 Pressure 5th speed 1/min: 1175 Contr.-rod trav.mm: 13.10...13.30 Sleeve travel mm: 9.50...10.00 Measurement 1/min: 600 SLEEVE POSITION Speed Control-lever position 1st pressure hPa : 350 C-rod trav.mm : 11.20...11.40 Degree: -1 17min: 600 Speed Cont.-rod travelmm: 19.20...20.80 2nd pressure hPa : 550 C-rod trav.mm : 12.40...12.60 3rd pressure hPa : 780 FULL-LOAD DELIV. AT FULL-LOAD STOP C-rod trav.mm : 13.20...13.30 1st version 4th pressure hPa : 1100 **B14** 

```
: 13.45...13.55
  C-rod trav.mm
SWITCH-OVER POINT
Speed
              1/min : 220 (240)
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 1100
Speed 1/min : 1050
Del.quantity cm3/: 184.0...187.0
              1000H.: (181.0...190.0)
               cm3/:8.00
Dispersion
              1000H.: (12.0)
Charge press. hPa : 1100
Speed
              1/min : 700
Del.quantity cm3/: 204.0...208.0
              1000H.: (201.0...211.0)
              cm3/: 8.00
1000H:: (12.0)
Dispersion
Charge press. hPa : -
Speed
              1/min : 500
Del.quantity cm3/: 129.0...131.0
1000H.: (126.0...134.0)
Dispersion cm3/: 8.00
              1000H.: (-)
STARTING FUEL DELIVERY
              1/min : 100
```

Speed Del.quantity cm3/: 190.0...210.0 1000H.: (186.0...214.0)

Note inst. in remarks column

Test sheet : DAF 11,7 D2 Edition : 22.05.87 Superceeded : -

Calibrating oil : ISO-4113

Combination no. : 0 401 846 835

Injection pump

Pump designation : PE6P12OA32ORS3183-1

EP type number : 0 411 826 758

Governor

Governor design. : RQ250/1000PA832 Governer no. : 0 421 801 368

Customer-spec. information Customer : DAF

: WS 259 Engine

1st version kW : 259.0 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Calibrating nozzle-holder

assembly ` : 1 688 901 019

Opening

pressure, bar : 207...210

Perforated-plate

diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 : (3.65...3.85) Prestroke mm LOWEST RATED SPEED I Contr.-rod trav.mm: 9.00...12.00 Setting point w/out aux. spring : 1-5-3-6-2-4 Speed 1/min : 250 Cam sequence Contr.-rod trav.mm: 7.3 Testing: SD ang. spacing  $^{\circ}$ CS: 0-60-120-180-240-300 Tolerance + -  $^{\circ}$ : 0.50 (0.75) 1/min : 100 Speed C-rod trav.mm min: 8.80 Speed 1/min: 250 C-rod trav.mm: 7.20...7.40 C-rod trav.mm: 2.00 Speed 1/min: 350...390 BASIC SETTING 1/mi: 850 1st speed Contr.-rod trav.mm: 12.60...12.70 TORQUE CONTROL Torque-control curve - 1st version Del.quantity cm3/: 20.0...20.2 1st speed 1/min: 850 C-rod trav.mm : 12.60...12.70 2nd speed 1/min: 1000 100H.: (19.7...20.5) C-rod trav.mm : 12.50...12.70 Dispersion cm3/:0.5compensator (LDA,ADA,ALDA) 100H.: (0.9) 2nd speed 1/min: 250.0 1st version Contr.-rod trav. m: 7.2...7.4

Del.quantity cm3/: 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/: 0.8 Setting 1/min : 600 Speed Pressure hPa : 1000 Contr.-rod trav.mm: 12.60...12.70 100H.: (1.2) Measurement 1/min : 600 SLEEVE POSITION Speed Control-lever position Degree: -1 1st pressure hPa : -Speed 1/min: 550 Cont.-rod travelmm: 15.60...16.40 C-rod trav.mm : 10.60...10.80 2nd pressure hPa : 510 C-rod trav.mm : 12.10...12.20 3rd pressure hPa : 360 FULL-LOAD DELIV. AT FULL-LOAD STOP C-rod trav.mm : 11.00...11.20 1st version 1/min: 850 FUEL-DELIVERY CHARACTERISTICS Speed Charge press. hPa : -Charge press. hPa : 1000 Del.quantity cm3/: 200.0...202.0 1000H.: (197.0...205.0) Dispersion cm3/: 5.00 1000H.: (9.00) Speed 1/min: 600 Del.quantity cm3/: 144.0...146.0 1000H.: (141.0...149.0) STARTING FUEL DELIVERY HIGHEST RATED SPEED Setting point: Speed 1/min : 550 Speed 1/min : 100 Del.quantity cm3/: 260.0...300.0 1000H.: (256.0...304.0) Contr.-rod trav.mm: 16.0 Testing: 1st c-rod trav.mm : 11.60 Speed 1/min : 1035...1050 LOW IDLE Speed 1/min : 250 Contr.-rod trav.mm: 7.20...7.40 2nd c-rod trav.mm : 4.00 1/min : 1125...1155 Speed 4th speed 1/min : 1250 Del.quantity cm3/: 16.0...22.0 1000H<sub>a</sub>: (13.0...25.0) C-rod trav.mm : 0.00...1.00

**B17** 

Dispersion cm3/: 8.00 1000H.: (12.00)

Note inst. in remarks column

Test sheet Edition : VOL 10,0 T : 09.03.87

Superceeded

Calibrating oil : ISO-4113

: 0 401 846 838 Combination no.

Injection pump

Pump designation : PE6P110A320R\$3152

EP type number : 0 411 816 746

Governor

Governor design. : RQV250...1100PA589 Governor no. : 0 421 813 307

Customer-spec. information : VOLVO-BM Customer

: TD102 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2-

```
Control-lever
SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                              position degrees: 59...67
                                                             Testina:
SD mark cyl. no. : 1
                                                             1st c-rod trav.mm : 12.00
                                                               Speed 1/min: 1160...1170
BASIC SETTING
                                                             2nd c-rod trav.mm : 4.00
                                                                         1/min : 1220...1250
                                                               Speed
                                                               th speed 1/min: 1350
C-rod trav.mm: 0.00...1.00
                 1/mi: 700
1st speed
                                                             4th speed
Contr.-rod trav.mm: 13.00...13.10
                                                             LOWEST RATED SPEED I
Del.quantity cm3/: 17.5...17.7
                                                             Control-lever
                                                              position degrees: 5...13
                100H.: (17.2...18.0)
                                                             Testing:
                cm3/: 0.4
Dispersion
                                                             Speed
                                                                            1/min : 100
                                                             C-rod trav.mm min : 5.40
Speed 1/min : 250
C-rod trav.mm : 3.90...4.10
                100H.: (0.7)
2nd speed 1/min: 250.0
Contr.-rod trav. m: 3.9...4.1
Del.quantity cm3/: 1.5...1.9
                                                             CONSTANT REGULATION
                                                                           1/min : 250...360
                                                             Speed
                100H.: (-)
                cm3/: 0.4
100H.: (0.7)
Dispersion
                                                              compensator (LDA, ADA, ALDA)
(B) Setting of injection pump with externally-mounted governor
                                                             1st version
                                                             Setting
                                                                            1/min : 500
                                                             Speed
                                                             Pressure
SLEEVE TRAVELS
                                                                           hPa : 1000
1st speed 1/min: 250
                                                             Contr.-rod trav.mm: 13.00...13.10
  Sleeve travel mm: 1.20...1.30
2nd speed 1/min: 350
Sleeve travel mm: 2.20...2.70
3rd speed 1/min: 450
Sleeve travel mm: 3.70...4.10
4th speed 1/min: 750
                                                             Measurement
                                                                           1/min : 500
                                                             Speed
                                                             1st pressure hPa :
                                                               C-rod trav.mm : 11.50...11.60
                                                             2nd pressure hPa : 480
  Sleeve travel mm: 6.40...6.60
                                                               C-rod trav.mm : 12.80...12.90
5th speed 1/min: 1160
  Sleeve travel mm: 8.10...8.30
                                                             3rd pressure hPa : 340
                                                               C-rod trav.mm : 11.80...12.00
SLEEVE POSITION
                                                             FUEL-DELIVERY CHARACTERISTICS
Control-lever position
                                                             Charge press. hPa : -
Speed 1/min : 700
               Degree: -1
1/min: 1180
                                                             Del.quantity cm3/: 152.0...154.0
1000H.: (149.0...157.0)
Cont.-rod travelmm: 15.20...17.80
FULL-LOAD DELIV. AT FULL-LOAD STOP
1st version
                                                             STARTING FUEL DELIVERY
                1/min: 700
Speed
Charge press. hPa: 1000
Del.quantity cm3/: 175.0...177.0
1000H.: (172.0...180.0)
Dispersion cm3/: 4.00
                                                            Speed 1/min: 100
Del.quantity cm3/: 160.0...190.0
                                                             1000H.: (156.0...194.0)
Contr.-rod trav.mm: 20.00...21.00
               1000H.: (7.50)
HIGHEST RATED SPEED
                                                             LOW IDLE
1st version
```

**B20** 

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

mm

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                        : 3.70...3.80
                                                     Prestroke mm
                                                                         : (3.65...3.85)
                                                     Contr.-rod trav.mm: 9.00...12.00
Note inst. in remarks column
                                                     Cam sequence : 1-5-3-6-2-4
Test sheet
                   : DAF 11,7 E
                   : 10.04.87
Edition
Superceeded
                                                     SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Calibrating oil : ISO-4113
                   : 0 401 846 839
Combination no.
                                                     BASIC SETTING
Injection pump
Pump designation : PE6P12OA32ORS3183
                                                     1st speed
                                                                  1/mi: 850
EP type number : 0 411 826 754
                                                     Contr.-rod trav.mm: 13.10...13.20
Governor
Governor design. : RQV250...1000PA851
Governer no. : 0 421 813 604
                                                     Del.quantity cm3/: 21.9...22.1
                                                                    100H.: (21.6...22.4)
Customer-spec. information
Customer
                   : DAF
                                                                   cm3/:0.5
                                                     Dispersion
Engine
                   : WS 225
                                                                    100H.: (0.9)
1st version kW : 225.0
              1/min: 2000
                                                                   1/min: 250.0
Speed
                                                     2nd speed
                                                     Contr.-rod trav. m: 6.8...7.0
                                                     Del.quantity cm3/: 1.4...2.0
TEST BENCH REQUIREMENTS
                                                                    100H.: (1.1...2.3)
Calibrating-oil inlet temp. °C
                                                                   cm3/: 0.8
100H.: (1.2)
                                                     Dispersion
                  : 38...42
Overflow valve
                                                      (B) Setting of injection pump with
                   : 1 417 413 025
                                                          externally-mounted governor
Inlet press., bar : 1.50
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 250
                                                       Sleeve travel mm: 1.30...1.70
Calibrating nozzle-holder
                                                     2nd speed 1/min: 400
Sleeve travel mm: 3.20...3.60
3rd speed 1/min: 800
              : 1 688 901 019
 assembly
Opening
pressure, bar : 207...210
                                                       Sleeve travel mm: 5.80...6.20
                                                     4th speed 1/min: 1000
                                                       Sleeve travel mm: 7.90...8.10
Perforated-plate
                   : 0,8
 diameter mm
                                                     SLEEVE POSITION
                                                     Control-lever position
Test inj. tubing : 1 680 750 067
                                                                  Degree: -1
1/min: 1040
                                                     Cont.-rod travelmm: 15.20...17.80
Outside diameter
x Wall thickness
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
                   : 6.00x1.50x1000
x Length mm
(A) Injection pump setting values
                                                     1st version
    Insp. values in parentheses
Set constant delivery quant.
                                                     Speed
                                                                   1/min: 850
                                                     Charge press. hPa: 1000
Del.quantity cm3/: 219.0...221.0
1000H.: (216.0...224.0)
    per values ____
                                                     Dispersion cm3/ : 5.00
START OF DELIVERY
Test pressure, bar: 25...27
                                                                  1000H.: (9.00)
```

HIGHEST RATED SPEED 1st version Control-lever position degrees: 51...59 Testing: 1st c-rod trav.mm : 12.10 Speed 1/min : 1040...1050 2nd c-rod trav.mm : 4.00 1/min: 1130...1160 Speed 4th speed 1/min : 1250 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I granta (# Control-lever position dégrees: 15...23 Testing: 1/min : 100 Speed C-rod trav.mm min: 8.40 Speed 1/min : 250 C-rod trav.mm : 6.80...7.00 CONSTANT REGULATION 1/min : 275...385 Speed compensator (LDA,ADA,ALDA) 1st version Setting Speed 1/min : 600 hPa : 1000 Pressure Contr.-rod trav.mm: 13.10...13.20 Measurement 1/min : 600 Speed 1st pressure hPa : -C-rod trav.mm : 10.20...10.40 2nd pressure hPa : 650 C-rod trav.mm : 12.40...12.50 3rd pressure hPa : 390 C-rod trav.mm : 10.60...10.90 SWITCH-OVER POINT Speed 1/min : 200 (220) FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : -1/min : 600 Speed Del.quantity cm3/: 144.0...146.0 1000H.: (141.0...149.0) STARTING FUEL DELIVERY Speed 1/min : 100

**B23** 

Del.quantity cm3/: 260.0...300.0 1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min: 250 Contr.-rod trav.mm: 6.80...7.00 Del.quantity cm3/: 14.0...20.0 1000H.: (11.0...23.0)

Dispersion cm3/: 8.00 1000H.: (12.00)

Note inst. in remarks column

Test sheet Edition Superceeded : DAF 11,7 E1 : 15.05.87

Calibrating oil : ISO-4113

Combination no. : 0 401 846 839

Injection pump

Pump designation : PE6P12OA32OR\$3183-1Y

EP type number : 0 411 826 765

Governor

Governor design. : RQV250...1000PA851

Governer no. : 0 421 813 604

Customer-spec. information Customer : DAF

Engine : WS 282

1st version kW : 282.0 Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 1 688 901 019 assembly

Opening.

pressure, bar : 207...210

Perforated-plate

: 0,8 diameter mm

Test inj. tubing : 1 680 750 067

Outside diameter

K Wall thickness

: 6.00x1.50x1000 Length mm

(r) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80 HIGHEST RATED SPEED : (3.65...3.85) 1st version Contr.-rod trav.mm: 9.00...12.00 Control-lever Cam sequence : 1-5-3-6-2-4 position degrees: 51...59 Testing: 1st c-rod trav.mm : 12.10 SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Speed 1/min: 1040...1050 2nd c-rod trav.mm: 4.00 Speed 1/min: 1130...1160 th speed 1/min: 1250 BASIC SETTING 4th speed C-rod trav.mm : 0.00...1.00 1/mi: 850 1st speed LOWEST RATED SPEED I Contr.-rod trav.mm: 13.10...13.20 Control-lever position degrees: 15...23 Del.quantity cm3/: 21.9...22.1 Testing: 100H.: (21.6...22.4) Speed 1/min: 100 C-rod trav.mm min: 8.40 cm3/: 0.5 Dispersion 1/min : 250 Speed C-rod trav.mm : 6.80...7.00 100H.: (0.9) CONSTANT REGULATION 1/min: 250.0 1/min : 275...385 Speed 2nd speed Contr.-rod trav. m: 8.8...7.0

Del.quantity cm3/: 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/: 0.8 compensator (LDA, ADA, ALDA) 100H.: (1.2) 1st version Setting 1/min : 600 (B) Setting of injection pump with Speed hPa : 1000 externally-mounted governor Pressure Contr.-rod trav.mm: 13.10...13.20 SLEEVE TRAVELS 1st speed 1/min: 250 Sleeve travel mm: 1.30...1.70 Measurement 1/min : 600 Speed 2nd speed 1/min: 400 Sleeve travel mm: 3.20...3.60 1st pressure hPa : -C-rod trav.mm : 10.20...10.40 3rd speed 1/min: 800 2nd pressure hPa : 650 Sleeve travel mm: 5.80...6.20 4th speed 1/min: 1000 Sleeve travel mm: 7.90...8.10 C-rod trav.mm : 12.40...12.50 3rd pressure hPa : 390 C-rod trav.mm : 10.60...10.90 SLEEVE POSITION SWITCH-OVER POINT Control-lever position 1/min : 200 (220) Degree: -1 Speed 17min: 1040 FUEL-DELIVERY CHARACTERISTICS Cont.-rod travelmm: 15.20...17.80 Charge press. hPa : -FULL-LOAD DELIV. AT FULL-LOAD STOP 1/min : 600 Speed Del.quantity cm3/: 144.0...146.0 1000H.: (141.0...149.0) 1st version Speed 1/min: 850 Charge press. hPa : 1000 Del.quantity cm3/: 219.0...221.0 1000H.: (216.0...224.0) Dispersion cm3/: 5.00 1000H.: (9.00) STARTING FUEL DELIVERY Speed 1/min: 100

Del.quantity cm3/: 260.0...300.0 1000H.: (256.0...304.0)

## LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks co'umn Test sheet Edition Superceeded : DAF 11.7 E2 : 13.05.87 Calibrating oil : ISO-4113 : 0 401 846 840 Combination no. Injection pump Pump designation : PE6P12OA32OR\$3183-1Z EP type rember : 0 411 826 760 Governor Governor design. : RQV250...1000PA851-1 Governer no. : 0 421 813 605 Customer-spec. information Customer : WS 225 Engine 1st version kW : 225.0 1/min: 2000 Speed TEST BENCH REQUIREMENTS Calibrating-oil inlet temp: °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Calibrating nozzle-holder : 1 688 901 019 assembly Opening

Opening : 207...210

Perforated-plate diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY Test pressure, bar: 25...27

Contrrod trav.mm:	3.703.80   (3.653.85)   9.0012.00   1-5-3-6-2-4	HIGHEST RATED SPEED 1st version Control-lever position degrees: 5058
SD ang. spacing CS: Tolerance + - : BASIC SETTING	0-60-120-180-240-300 0.50 (0.75)	Testing: 1st c-rod trav.mm : 10.30 Speed 1/min : 10401050 2nd c-rod trav.mm : 4.00 Speed 1/min : 11201150 4th speed 1/min : 1250 C-rod trav.mm : 0.001.00
1st speed 1/mi:	850	
Contrrod trav.mm:	11.3011.40	LOWEST RATED SPEED I Control-lever position degrees: 1523
Del.quantity cm3/:	18.118.3	•
100H.:	(17.818.6)	Testing: Speed 1/min : 100 C-rod trav.mm min : 8.10
Dispersion cm3/:		Speed 1/min : 250 C-rod trav.mm : 6.506.70
100H.:	(0.9)	CONSTANT REGULATION
<pre>2nd speed 1/min: Contrrod trav. m: Del.quantity cm3/:</pre>	6.56.7 1.42.0	Speed 1/min: 275385  compensator (LDA,ADA,ALDA)
Dispersion cm3/: 100H.:		1st version
(B) Setting of injection externally-mount	ction pump with ted governor	Setting Speed 1/min: 600 Pressure hPa: 1000 Contrrod trav.mm: 11.3011.40
SLEEVE TRAVELS 1st speed 1/min: Sleeve travel mm: 2nd speed 1/min: Sleeve travel mm: 3rd speed 1/min: Sleeve travel mm: 4th speed 1/min: Sleeve travel mm:	1.301.70   1   400   1   1   1   1   1   1   1   1   1	Measurement Speed 1/min: 600  1st pressure hPa: -     C-rod trav.mm: 10.1010.30 2nd pressure hPa: 410     C-rod trav.mm: 11.0011.10 3rd pressure hPa: 340
SLEEVE POSITION		C-rod trav.mm : 10.5010.70
Control-lever position Degree: Speed 1/min: Controd travelmm:	-1 1040 15.2017.80	FUEL-DELIVERY CHARACTERISTICS Charge press. hPa: - Speed 1/min: 600 Del.quantity cm3/: 144.0146.0 1000H.: (141.0149.0)
FULL-LOAD DELIV. AT	FULL-LOAD STOP	
1st version Speed 1/min: Charge press. hPa: Del.quantity cm3/: 1000H.: Dispersion cm3/: 1000H.:	1000   1 181.0183.0   1 (178.0186.0)   1 5.00   1	Speed 1/min: 100 Del.quantity cm3/: 260.0300.0 1000H.: (256.0304.0)
929	ı	LOW IDLE

Speed 1/min: 250 Contr.-rod trav.mm: 6.50...6.70 Del.quantity cm3/: 14.0...20.0 1000H.: (11.0...23.0) Dispersion cm3/: 8.00 1000H.: (12.00)

Note inst. in remarks column

Test sheet : UNI 13.8 C Edition : 30.03.87 Superceeded : -

Calibrating oil : ISO-4113

Combination no. : 0 401 846 845

Injection pump

Pump designation : PE6P12OA72ORS3192

EP type number : 0 411 826 761

Governor

Governor design. : RQV300...900PA857

Governer no. : 0 421 813 613

Customer-spec. information

Customer : IVECO-UNIC

: 8210.42.101-115 Engine

1st version kW : 265.0 Speed 1/min: 1800

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Perforated-plate

: 0,8 diameter mm

Test inj. tubing : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values

START OF DELIVERY

Test pressure, bar: 25...27

: 3.40...3.50 : (3.35...3.55) Dispersion cm3/ : 5.00 Prestroke mm 1000H.: (9,00) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5-3-6-2-4 HIGHEST RATED SPEED 1st version Control-lever position degrees: 57...65 SD ang. spacing  $^{\circ}$ CS: 0-60-120-180-240-300 Tolerance + -  $^{\circ}$ : 0.50 (0.75) Testing: 1st c-rod trav.mm : 12.50 Speed 1/min: 940...950 SD mark cyl. no. : 1 2nd c-rod trav.mm : 4.00 Speed 1/min: 1055...1085 4th speed 1/min: 1200 BASIC SETTING 1/mi: 900 C-rod trav.mm : 0.00...1.00 1st speed Contr.-rod trav.mm: 13.50...13.60 LOWEST RATED SPEED I Control-lever Del.quantity cm3/: 25.4...25.6 position degrees: 4...12 100H.: (25.1...25.9) Testing: Speed 1/min: 100 C-rod trav.mm min: 5.90 Speed 1/min: 300 cm3/: 0.5 Dispersion 100H.: (0.9) C-rod tray.mm : 4.30...4.50 1/min: 300.0 2nd speed CONSTANT REGULATION 1/min: 370...490 Contr.-rod trav. m: 4.3...4.5 Speed Del.quantity cm3/: 1.5...2.1 100H:: (1.2...2.4) Dispersion cm3/: 0.8 100H:: (1.2) compensator (LDA,ADA,ALDA) 1st version Setting (B) Setting of injection pump with externally-mounted governor 1/min : 500 Speed hPa : 900 Pressure Contr.-rod trav.mm: 13.50...13.60 SLEEVE TRAVELS 1st speed 1/min: 300 Sleeve travel mm: 0.70...0.90 Measurement 2nd speed 1/min: 550 Sleeve travel mm: 4.00...4.60 1/min : 500 Speed 3rd speed 1/min: 8000 1st pressure hPa : -: 9.40...9.60 Sleeve travel mm: 6.60...6.90 C-rod trav.mm 2nd pressure hPa : 590 4th speed 1/min: 900 Sleeve travel mm: 7.70...7.90 C-rod trav.mm : 12.60...12.70 3rd pressure hPa : 390 SLEEVE POSITION : 10.40...10.80 C-rod trav.mm Control-lever position Degree: -1 1/min: 965 FUEL-DELIVERY CHARACTERISTICS Cont.-rod travelmm: 15.20...17.80 1st version Charge press. hPa : 900 FULL-LOAD DELIV. AT FULL-LOAD STOP Speed 1/min : 500 Del.quantity cm3/: 249.0...255.0 1000H.: (246.0...258.0) 1st version Speed 1/min: 900 Charge press. hPa : -1/min : 500 Charge press. hPa : 900 Speed Del.quantity cm3/: 254.0...256.0 1000H.: (251.0...259.0) Del.quantity cm3/: 125.0...127.0 1000H.: (122.0...130.0)

## STARTING FUEL DELIVERY

## LOW IDLE

1/min : 300 Speed

On activation of the starting solenoid, the start position must be reached.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                        : 3.40...3.50
                                                     Prestroke mm
                                                                         : (3.35...3.55)
Note inst. in remarks column
                                                     Contr.-rod trav.mm: 9.00...12.00
                                                     Cam sequence : 1-5-3-6-2-4
Test sheet
Edition
Superceeded
                  : UNI 13.8 D
                   : 10.04.87
                                                     SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Calibrating oil : ISO-4113
                   : 0 401 846 848
Combination no.
                                                     SD mark cyl. no. : 1
Injection pump
Pump designation : PE6P12OA72ORS3195
                                                     BASIC SETTING
EP type number : 0 411 826 762
                                                                  1/mi: 900
Governor
                                                     1st speed
Governor design. : RQV300...900PA857
Governer no. : 0 421 813 613
                                                     Contr.-rod trav.mm: 12.30...12.40
                                                     Del.quantity cm3/: 23.2...23.4
Customer-spec. information
Customer
                   : IVECO-UNIC
                                                                   100H.: (22.9...23.7)
Engine
                   : 8210.22.101-105
                                                                   cm3/:0.5
                                                     Dispersion
1st version kW : 242.0
             1/min: 1800
                                                                    100H.: (0.9)
Speed
TEST BENCH REQUIREMENTS
                                                                   1/min: 300.0
                                                     2nd speed
                                                     Contr.-rod trav. m: 3.9...4.1
Calibrating-oil inlet temp. °C
                                                     Del.quantity cm3/ : 1.7...2.3
                                                                   100H.: (1.4...2.6)
cm3/: 0.8
100H.: (1.2)
                   : 38...42
                                                     Dispersion
Overflow valve
                    : 1 417 413 025
                                                      (B) Setting of injection pump with
Inlet press., bar : 1.50
                                                         externally-mounted governor
Calibrating nozzle-holder
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 300
Sleeve travel mm: 0.50...0.90
2nd speed 1/min: 550
Sleeve travel mm: 4.00...4.60
 assembly : 1 688 901 019
Opening
 pressure, bar
                  : 207...210
                                                     3rd speed 1/min: 800
                                                       Sleeve travel mm: 6.60...7.00
Perforated-plate
                                                     4th speed 1/min: 900
 diameter mm
                   : 0.8
                                                       Sleeve travel mm: 7.70...7.90
Test inj. tubing : 1 680 750 067
                                                     SLEEVE POSITION
                                                     Control-lever position
Outside diameter
                                                                  Degree: -1
                                                                   17min: 965
x Wall thickness
                   : 6.00x1.50x1000
                                                     Cont.-rod travelmm: 15.20...17.80
x Length mm
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                     1st version
                                                     Speed 1/min: 900 Charge press. hPa: 900
    per values ____
                                                     Del.quantity cm3/: 232.0...234.0
START OF DELIVERY
                                                                  1000H.: (229.0...237.0)
Test pressure, bar: 25...27
```

```
Dispersion cm3/ : 5.00
             1000H.: (9.00)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 56...64
Testina:
1st c-rod trav.mm : 11.30
             1/min : 940...950
  Speed
2nd c-rod trav.mm : 4.00
             1/min : 1045...1075
  Speed
             1/min : 1200
4th speed
                 : 0.00...1.00
  C-rod trav.mm
LOWEST RATED SPEED I
Control-lever
 position degrees: 3...11
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 5,50
Speed 1/min : 300
C-rod trav.mm : 3,90...4.10
                   : 2.00
C-rod trav.mm
            1/min : 345...405
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
Speed
             1/min : 500
             hPa : 900
Pressure
Contr.-rod trav.mm: 12.30...12.40
Measurement
             1/min : 500
Speed
1st pressure hPa
                   : 8.90...9.10
  C-rod trav.mm
2nd pressure hPa : 520
  C-rod trav.mm : 11.50...11.69
3rd pressure hPa : 370
  C-rod trav.mm
                   : 9.60...9.80
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 900
            1/min : 500
Speed
Del.quantity cm3/: 227.0...233.0
1000H.: (224.0...236.0)
Charge press. hPa : -
            1/min : 500
Speed
Del.quantity cm3/: 127.0...129.0
```

1000H.: (124.0...132.0)

STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 250.0...270.0 1000H.: (246.0...274.0)

LOW IDLE

Speed 1/min: 300 Contr.-rod trav.mm: 3.90...4.10 Del.quantity cm3/: 17.0...23.0 1000H.: (14.0...26.0) Dispersion cm3/: 8.00 1000H.: (12.00)

On activation of the starting solenoid,

the start position must be reached.

```
Cam sequence : 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                      SD ang. spacing ^{0}CS: 0-60-120-180-240-300 Tolerance + - ^{0}: 0.50 (0.75)
                    : VOL 10.0 U
Test sheet
                    : 12.06.87
Edition
Superceeded
Calibrating oil
                   : ISO-4113
                                                       SD mark cyl. no. : 1
                    : 0 401 846 850
                                                      BASIC SETTING
Combination no.
                                                       1st speed 1/mi: 700
Injection pump
Pump designation : PE6P110A320RS3197
EP type number
                    : 0 411 816 752
                                                       Contr.-rod trav.mm: 12.80...12.90
Governor
Governor design.
Governer no.
                   : RQV300...1100PA232-2
                                                       Del.quantity cm3/ : 14.7...14.9
                    : 0 421 813 639
                                                                     100H.: (14.4...15.2)
Customer-spec. information
                   : VOLVO-BM
                                                                     cm3/:0.4
                                                       Dispersion
Customer
                    : TD102
                                                                     100H.: (0.7)
Engine
1st version kW : 196.0
                                                                     1/min: 300.0
                                                       2nd speed
              1/min: 2200
                                                       Del.quantity cm3/: 1.6...2.0
Speed
                                                                     100H.: (1.3...2.2)
cm3/: 0.3
100H.: (0.6)
TEST BENCH REQUIREMENTS
                                                       Dispersion
Calibrating-oil inlet temp. OC
                   : 38...42
                                                       (B) Setting of injection pump with
                                                           externally-mounted governor
Overflow valve
                    : 1 417 413 025
                                                       SLEEVE TRAVELS
                                                       1st speed 1/min: 300
                                                      Sleeve travel mm: 1.40...1.60
2nd speed 1/min: 350
Sleeve travel mm: 1.70...2.30
3rd speed 1/min: 700
Inlet press., bar : 1.50
Calibrating nozzle-holder
              : 0 681 343 009
 assembly
                                                         Sleeve travel mm: 4.40...5.00
                                                       4th speed 1/min: 1165
Opening
                                                         Sleeve travel mm: 8.70...8.90
pressure, bar : 172...175
                                                       5th speed 1/min: 1255
                                                         Sleeve travel mm: 9.60...10.00
Test inj. tubing : 1 680 750 015
                                                       SLEEVE POSITION
Outside diameter
                                                      Control-lever position
x Wall thickness
                                                                    Degree: -1
                                                                     17min: 1150
x Length mm
                    : 6.00x1.50x600
                                                      Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                      1st version
                                                                     1/min: 700
                                                      Speed
START OF DELIVERY
                                                      Charge press. hPa : 900
                                                      Del.quantity cm3/: 147.0...149.0
1000H.: (144.0...152.0)
Dispersion cm3/: 4.00
Test pressure, bar: 25...27
Prestroke mm
                    : 3.50...3.60
                    : (3.45...3.65)
                                                                    1000H.: (7.50)
Contr.-rod trav.mm: 9.00...12.00
C07
```

```
: 1-5- 3- 6- 2- 4
: 0-60-120-180-240-300
: 0.50 (0.75)
: 1
700
: 12.80...12.90
: 14.7...14.9
(14.4...15.2)
0.4
(0.7)
300.0
1.6...2.0
(1.3.
0.3
(0.6)
 (1.3...2.2)
ection pump with
ited governor
300
 1.40...1.60
 350
 1.70...2.30
700
 4.40...5.00
 1165
8.70...8.90
 1255
9.60...10.00
:ion
1150
15.20...17.80
FULL-LOAD STOP
 700
 900
 147.0...149.0
 (144.0...152.0)
 4.00
(7.50)
```

```
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 104...112
Testing:
1st c-rod trav.mm : 11.80
  Speed
              1/min : 1160...1170
2nd c-rod trav.mm : 4.00
Speed 1/min: 1240...1270
4th speed 1/min: 1400
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 69...77
Testing:
Speed
               1/min : 100
C-rod trav.mm min : ?
Speed
           1/min : 300
C-rod trav.mm
CONSTANT REGULATION
               1/min : ?
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
            1/min : 500
hPa : 900
Speed
Pressure
Contr.-rod trav.mm: 12.80...12.90
Measurement
               1/min : 500
Speed
1st pressure hPa : -
                      : 11.30...11.50
  C-rod trav.mm
2nd pressure hPa : 300
C-rod trav.mm : 12.6
G-rod trav.mm : 12.60...12.70
3rd pressure hPa : 150
  C-rod trav.mm
                     : 11.70...11.90
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa: 900
Speed 1/min: 1000
Del.quantity cm3/: 142.0...146.0
1000H.: (139.0...149.0)
Charge press. hPa : -
Speed 1/min : 700
Del.quantity cm3/ : 118.5...121.5
1000H.: (116.0...124.0)
STARTING FUEL DELIVERY
CO8
```

```
LOW IDLE
Speed 1/min: 300
Del.quantity cm3/: 16.0...20.0
1000H:: (13.5...22.5)
Dispersion cm3/: 3.00
              1000H.: (6.00)
Remarks:
APPLICATION
Loading machine
```

1st version

Speed 1/min: 1150

SWITCH-OVER POINT Speed 1/min: 220 (240)

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                        Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4
Note inst. in remarks column
Test sheet
                    : VOL 10,0 V
: 12.06.87
                                                        SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)
Edition
Superceeded
Calibrating oil
                  : ISO-4113
                                                        SD mark cyl. no. : 1
Combination no.
                    : 0 401 846 851
                                                        BASIC SETTING
Injection pump
Pump designation
                   : PE6P110A320RS3080
                                                                     1/mi: 700
                                                        1st speed
EP type number
                    : 0 411 816 722
Governor
                                                        Contr.-rod trav.mm: 13.70...13.80
Governor design.
                    : RQV250...1050PA657
                                                        Del.quantity cm3/: 18.5...18.7
                      -17
                    : 0 421 813 652
Governer no.
                                                                       100H.: (18.2...19.0)
Customer-spec. information
Customer
                                                        Dispersion
                                                                       cm3/:0.4
                    : VOLVO
Engine
                    : TD102FAQ
                                                                       100H.: (0.7)
                                                       2nd speed 1/min: 250.0
Contr.-rod trav. m: 3.8...4.0
Del.quantity cm3/: 1.5...1.9
100H:: (1.2...2.1)
1st version kW : 221.0
               1/min: 2100
Speed
TEST BENCH REQUIREMENTS
                                                                       cm3/: 0.3
                                                        Dispersion
Calibrating-oil inlet temp. °C
                                                                       100H.: (0.6)
                    : 38...42
                                                        (B) Setting of injection pump with externally-mounted governor
Overflow valve
                    : 1 417 413 025
                                                        SLEEVE TRAVELS
                                                        1st speed 1/min: 250
Inlet press., bar: 1.50
                                                          Sleeve travel mm: 1.00...1.40
                                                                     1/min: 350
Calibrating nozzle-holder
                                                        2nd speed
                                                        Sleeve travel mm: 2,20...2.80 3rd speed 1/min: 700
 assembly
             : 0 681 343 009
                                                          Sleeve travel mm: 6.40...6.60
Opening
                                                        4th speed 1/min: 1085
Sleeve travel mm: 7.80...8.00
pressure, bar : 172...175
                                                        5th speed 1/min: 1170
Test inj. tubing : 1 680 750 015
                                                          Sleeve travel mm: 9.20...9.60
Outside diameter
                                                        SLEEVE POSITION
x Wall thickness
                                                        Control-lever position
                                                                     Degree: -1
1/min: 1120
                    : 6.00x1.50x600
x Length mm
                                                        Speed
                                                        Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
                                                        FULL-LOAD DELIV. AT FULL-LOAD STOP
    Set constant delivery quant.
    per values
                                                        1st version
                                                                       1/min: 700
START OF DELIVERY
                                                        Speed
                                                       Charge press. hPa: 900
Del.quantity cm3/: 185.0...187.0
1000H.: (182.0...190.0)
Test pressure, bar: 25...27
                    : 3.00...3.10
Prestroke mm
                    : (2.95...3.15)
C09
```

```
Dispersion cm3/:4.00
            1000H.: (7.50)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 59...67
Testing:
1st c-rod trav.mm : 12.70
           1/min: 1080...1090
  Speed
2nd c-rod trav.mm : 4.00
            1/min : 1155...1185
  Speed
4th speed
            1/min : 1300
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 4...12
Testing:
            1/min : 100
Speed
C-rod trav.mm min : 5,30
Speed 1/min : 250
C-rod trav.mm : 3.80...4.00
CONSTANT REGULATION
            1/min : 250...370
Speed
 compensator (LDA,ADA,ALDA)
1st version
Setting
            1/min : 500
Speed
Pressure
            hPa : 900
Contr.-rod trav.mm: 13.70...13.80
Measurement
           1/min : 500
Spead
1st pressure hPa
                  : 10.80...11.00
  C-rod trav.mm
2nd pressure hPa
                  : 520
 C-rod trav.mm
                  : 13.50...13.60
3rd pressure hPa
                  : 100
  C-rod trav.mm
                  : 11.10...11.30
FUEL-DELIVERY CHARACTERISTICS
Charge press. hPa : -
            1/min : 700
Speed
Del.quantity cm3/: 136.0...139.0
            1000H.: (133.5...141.5)
STARTING FUEL DELIVERY
Speed
           1/min : 100
```

Del.quantity cm3/: 160.0...190.0 1000H.: (156.0...194.0) Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min: 250 Contr.-rod trav.mm: 3.80...4.00 Del.quantity cm3/: 15.0...19.0 1000H.: (12.5...21.5) Dispersion cm3/: 3.00 1000H.: (6.00)

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

C10

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                           : 2.60...2.70
                                                       Prestroke mm
                                                                           : (2.55...2.75)
                                                       Contr.-rod trav.mm: 9.00...12.00
Note inst. in remarks column
                                                       Cam sequence : 1-5-3-6-2-4
Test sheet
                    : VOL 12_OK12
                    : 12.06.87
Edition
Superceeded
                                                       SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Calibrating oil : ISO-4113
Combination no. : 0 401 846 854
                                                       SD mark cyl. no. : 1
Injection pump
Pump designation : PE6P12OA32ORS3118-1
                                                       BASIC SETTING
EP type number : 0 411 826 739
Governor
                                                       1st speed
                                                                       1/mi: 700
Governor design. : RQV250...850PA657-20
Governer no. : 0 421 813 650
                                                       Contr.-rod trav.mm: 12.30...12.40
                                                       Del.quantity cm3/: 21.4...21.6
Customer-spec. information
Customer
                   : VOLVO
                                                                      100H.: (21.1...21.9)
                    : TD122FCQ
Engine
                                                                      cm3/:0.5
                                                       Dispersion
1st version kW : 287.0
              1/min: 1700
                                                                      100H.: (0.9)
Speed
TEST BENCH REQUIREMENTS
                                                                      1/min: 250.0
                                                       2nd speed
                                                       Contr.-rod trav. m: 3.3...3.5

Del.quantity cm3/: 1.8...2.3

100H.: (1.5...2.5)

Dispersion cm3/: 0.5

100H.: (0.7)
Calibrating-oil inlet temp. °C
                   : 38...42
Overflow valve
                    : 1 417 413 025
                                                       (B) Setting of injection pump with
                                                           externally-mounted governor
Inlet press., bar: 1.50
Calibrating nozzle-holder
                                                       SLEEVE TRAVELS
                                                       1st speed 1/min: 250
                 : 1 688 901 019
 assembly
                                                       Sleeve travel mm: 1.00...1.40
2nd speed 1/min: 350
Sleeve travel mm: 2.20...2.80
3rd speed 1/min: 700
Opening
 pressure, bar : 207...210
                                                         Sleeve travel mm: 6.40...6.60
Lubricating oil : 8
                                                       4th speed 1/min: 885
                                                         Sleeve travel mm: 7.60...7.80
Test inj. tubing : 1 680 750 067
                                                       5th speed 1/min: 955
                                                         Sleeve travel mm: 8.80...9.20
Outside diameter
                                                       SLEEVE POSITION
x Wall thickness
                : 6.00x1.50x1000
x Length mm
                                                       Control-lever position
                                                                    Degree: -1
                                                                     17min: 930
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       Cont.-rod travelmm: 15.20...17.80
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
START OF DELIVERY
                                                       1st version
                                                       Speed
                                                                     1/min: 700
Test pressure, bar: 25...27
                                                       Charge press. hPa : 900
```

Del.quantity cm3/: 214.5...216.5 1000H.: (211.5...219.5) Dispersion cm3/: 5.00 1000H.: (9.00) HIGHEST RATED SPEED 1st version Control-lever position degrees: 57...65 Testing: 1st c-rod trav.mm : 11.30 1/min : 880...890 Speed 2nd c-rod trav.mm : 4.00 1/min : 990...970 Speed 1/min : 1100 4th speed : 0.00...1.00 C-rod trav.mm LOWEST RATED SPEED I Control-lever position degrees: 3..11 Testing: 1/min : 100 Speed C-rod trav.mm min: 4.80 1/min : 250 Speed C-rod trav.mm : 3.30...3.50 CONSTANT REGULATION 1/min : 250...350 Speed compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed hPa : 900 Pressure Contr.-rod trav.mm: 12.30...12.40 Measurement 1/min : 500 Speed 1st pressure hPa : 9.20...9.40 C-rod trav.mm : 80 2nd pressure hPa C-rod trav.mm : 9.60...9.70 FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : -1/min : 700 Speed Del.quantity cm3/ : 154.0...156.0 1000H.: (151.0...159.0)

Del.quantity cm3/: 240.0...280.0 1000H.: (236.0...284.0) Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min: 250
Contr.-rod trav.mm: 3.30...3.50
Del.quantity cm3/: 18.0...23.0
1000H.: (15.5...25.5)
Dispersion cm3/: 5.00
Delivery-valve spring pre-tension

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90

nm

C12

Speed

STARTING FUEL DELIVERY

1/min : 100

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                              : 8- 7- 2- 6- 3- 5-
                                                         Cam sequence
                                                                                4- 1
Note inst. in remarks column
Test sheet
                     : MAN 14,5 A
                                                         SD ang. spacing CS: 0-45-90-135-180-225-
Edition
                     : 30.03.87
                                                                                270-315
                    : 11.85
Superceeded
                                                         Tolerance + - 0
                                                                              : 0.50 (0.75)
Calibrating oil : ISO-4113
                    : 0 401 848 082
Combination no.
                                                         SD mark cyl. no. : 8
Injection pump
                                                         BASIC SETTING
Pump designation : PEBP110A520LS851
EP type number
                    : 0 411 818 046
                                                                     1/mi: 1150
                                                         1st speed
Governor
Governor design.
                     : RQ250/1150PA688
                                                         Contr.-rod trav.mm: 10.80...10.90
Governer no.
                    : 0 421 801 231
                                                         Del.quantity cm3/: 14.3...14.5
Customer-spec. information
                                                                        100H.: (14.0...14.7)
Customer
                    : MAN
                     : D2848T
                                                                        cm3/:0.4
Engine
                                                         Dispersion
1st version kW : 245.0
                                                                        100H.: (0.7)
               1/min: 2300
Speed
                                                        2nd speed 1/min: 250.0
Contr.-rod trav. m: 4.9...5.1
Del.quantity cm3/: 1.8...2.4
100H.: (1.5...2.6)
Dispersion cm3/: 0.4
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. Oc
                    : 38...42
                                                                        100H.: (0.7)
Overflow valve
                     : 1 417 413 025
                                                         SLEEVE POSITION
                                                         Control-lever position
                                                                       Degree: -2
1/min: 600
Inlet press., bar : 1.50
                                                         Speed
                                                         Cont.-rod travelmm: 19.20...20.80
Calibrating nozzle-holder
                   : 0 681 343 009
 assembly
                                                         FULL-LOAD DELIV. AT FULL-LOAD STOP
Opening
pressure, bar : 172...175
                                                         1st version
                                                        Speed 1/min: 1150
Charge press. hPa: 1000
Del.quantity cm3/: 143.0...145.0
1000H.: (140.5...147.5)
Dispersion cm3/: 4.00
Test inj. tubing : 1 680 750 015
Outside diameter
                                                                       1000H.: (7.50)
x Wall thickness
                 : 6.00x1.50x600
x Length mm
                                                         HIGHEST RATED SPEED
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                         Setting point:
                                                                   1/min : 600
    per values ____
                                                         Contr.-rod trav.mm: 20.0
                                                         Testing:
START OF DELIVERY
Test pressure, bar: 25...27
                                                         1st c-rod trav.mm : 9.80
                                                        Speed 1/min: 1195...1210
2nd c-rod trav.mm: 4.00
Speed 1/min: 1280...1310
                     : 3.00...3.10
Prestroke mm
                     : (2.95...3.15)
Contr.-rod trav.mm: 9.00...12.00
                                                         3rd c-rod trav.mm : 4.00
C13
```

4th speed 1/min: 1450 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Setting point w/out aux. spring 1/min : 250 Speed Contr.-rod trav.mm: 5.0 Testing: 1/min : 100 Speed C-rod trav.mm min : 6.50 / 1/min : 250 Speed : 4.90...5.10 C-rod trav.mm : 2.00 C-rod trav.mm 1/min : 310...350 Speed TORQUE CONTROL Dimension a mm Torque-control curve - 1st version 1st speed 1/min: 1150 C-rod trav.mm: 10.80...10.90 2nd speed 1/min: 700 C-rod trav.mm : 10.80...11.00 compensator (LDA,ADA,ALDA) 1st version Setting Speed 1/min : 500 Pressure hPa : 1000 Contr.-rod trav.mm: 10.80...10.90 Measurement 1/min : 500 Speed 1st pressure hPa : 9.60...9.70 C-rod trav.mm 2nd pressure hPa : 290 : 10.50...10.60 C-rod trav.mm 3rd pressure hPa : 230 : 10.00...10.20 C-rod trav.mm SWITCH-OVER POINT 1/min : 170 (190) Speed FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 1000 Speed 1/min : 700 Del.quantity cm3/: 137.0...141.0 1000H.: (134.0...144.0) Charge press. hPa : -Speed 1/min: 500 Del.quantity cm3/: 108.0...110.0 1000H.: (105.5...112.5) cm3/:-Dispersion 1000H.: (7.50)

STARTING FUEL DELIVERY

1/min : 100 Speed Del.quantity cm3/: 190.0...210.0

1000H.: (186.0...214.0)

LOW IDLE

1/min : 250 Speed Contr.-rod trav.mm: 4.90...5.10 Del.quantity cm3/: 18.0...24.0 1000H:: (15.5...26.5) Dispersion cm3/: 4.50 1000H.: (7.50)

Remarks:

: MAN-NR. 2-7553

Note inst. in remarks column

Test sheet : MB 14,6 & Edition : 12.12.86 Superceeded : 6.85 : MB 14,6 E Calibrating oil : ISO-4113

: 0 401 848 708 Combination no.

Injection pump

Pump designation : PE8P110A320L\$3802

EP type number : 0 411 818 705

Governor

Governor design. : RQ300/1150PA187-3 Governer no. : 0 421 801 133

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M422 Engine

1st version kW : 206.0 Speed 1/min: 2300 2nd version kW : 206 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over # low

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

```
Test pressure, bar: 25...27
                                                            Dispersion cm3/ : 4.00
                                                                           1000H.: (8.00)
                      : 4.00...4.10
: (3.95...4.15)
Prestroke mm
                                                            2nd version
                                                                            1/min: 1150
                                                            Speed
                                                            Del.quantity cm3/: 127.0...129.0
1000H.: (124.0...132.0)
Dispersion cm3/: 4.0
Contr.-rod trav.mm: 9.00...12.00
                     : 8- 7- 2- 6-
Cam sequence
                         4- 1
                                                                           1000H.: (8.0)
                                                            HIGHEST RATED SPEED
SD ang. spacing CS: 0-45-90-135-180-225-
                        270-315
                                                            Setting point:
Towerance + - 0
                      : 0.50 (0.75)
                                                            Speed 1/min: 650
                                                            Contr.-rod trav.mm: 13.5
SD mark cyl. no. : 8
                                                            Testing:
BASIC SETTING
                                                            1st c-rod trav.mm : 10.70
                                                                        1/min : 1195...1210
                                                               Speed
1st speed 1/mi: 750
                                                            2nd c-rod trav.mm : 4.00
                                                              Speed 1/min: 1240...1270 th speed 1/min: 1350 C-rod trav.mm: 0.00...1.50
Contr.-rod trav.mm: 11.70...11.80
                                                            4th speed
Del.quantity cm3/: 11.3...11.5
                                                            Setting point:
                100H.: (11.0...11,7)
                                                                         1/min : 650
                                                            Speed
                                                            Contr.-rod trav.mm: 13.5
Dispersion
                cm3/:0.4
                                                            Testing:
                                                            1st c-rod trav.mm : 11.30
Speed 1/min : 1195...1210
2nd c-rod trav.mm : 4.00
                100H.: (0.8)
2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.9...8.1
                                                                         1/min : 1235...1265
                                                               Speed
Del.quantity cm3/: 1.5...2.1
                                                                           1/min : 1350
                                                            4th speed
                                                               C-rod trav.mm : 0.00...1.00
                100H.: (1.2...2.3)
                cm3/: 0.4
100H.: (0.7)
Dispersion
                                                            LOWEST RATED SPEED I
                                                            Setting point w/out aux. spring Speed 1/min: 300
1st speed 1/min: 1150
Contr.-rod trav.mm: 12.3...12.4
Del.quantity cm3/: 12.7...12.9
100H.: (-)
                                                            Contr.-rod trav.mm: 8.1
                                                            Testing:
               cm3/: 0.4
100H.: (0.8)
1/min: 300
                                                                           1/min : 100
Dispersion
                                                            Speed
                                                            C-rod trav.mm min : 10.20
                                                                          1/min : 300
2nd speed
                                                            Speed
Contr.-rod trav.mm: 8.00...8.10
Del.quantity cm3/: 1.5...2.1
100H.: (-)
                                                            C-rod trav.mm : 8.00...8.20
                                                                                  : 2.00
                                                            C-rod trav.mm
                                                                          1/min : 420...460
1/min : 550
                                                            Speed
                                                            Speed
SLEEVE POSITION
                                                            C-rod trav.mm max: 1.80
Control-lever position
                                                            FUEL-DELIVERY CHARACTERISTICS
              Degree: -1
               17min: 650
                                                                          1/min : 1150
                                                            Speed
Speed
                                                            Del.quantity cm3/: 132.0...136.0
1000H.: (129.0...139.0)
Dispersion cm3/: 7.00
1000H.: (10.0)
Cont.-rod travelmm: 13.00...14.00
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                                           1/min : 600
1st version
                                                            Speed
                                                            Del.quantity cm3/: 118.0...122.0
Speed
                1/min: 750
                                                                           1000H.: (115.0...125.0)
Del.quantity cm3/: 113.0...115.0
1000H.: (110.5...117.5)
```

C16

Dispersion cm3/: 8.0 1000H.: (11.0)

STARTING FUEL DELIVERY

Version 1: Without return-flow restriction
Version 2: With return-flow restriction

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                         : 4.00...4.10
                                                     Prestroke mm
                                                     : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
Note inst. in remarks column
Test sheet
                   : MB 14,6 E 4
                                                                           4- 1
                   : 13.05.87
Superceeded
Calibrating oil : ISO-4113
                                                     SD ang. spacing CS: 0-45-90-135-180-225-
Combination no. : 0 401 848 708
                                                                           270-315
                                                     Tolerance + - 0 : 0.50 (0.75)
Injection pump
Pump designation : PE8P110A320LS3802~10
                                                     SD mark cyl. no. : 8
EP type number : 0 411 818 770
                                                     BASIC SETTING
Governor
Governor design. : RQ300/1150PA187-3
                                                     1st speed 1/mi: 750
Governer no. : 0 421 801 133
                                                     Contr.-rod trav.mm: 11.70...11.80
Customer-spec. information
                   : DAIMLER-BENZ
Customer
                                                     Del.quantity cm3/: 11.3...11.5
Engine
                   : 0M422
                                                                   100H.: (11.0...11.7)
1st version kW : 206.0
             1/min: 2300
                                                     Dispersion
                                                                   cm3/:0.4
Speed
TEST BENCH REQUIREMENTS
                                                                   100H.: (0.7)
                                                     2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.9...8.1
Del.quantity cm3/: 1.5...2.1
100H.: (1.2...2.3)
Calibrating-oil inlet temp. °C
                  : 38...42
Overflow valve
                                                                   cm3/: 0.4
100H.: (0.7)
                    : 1 417 413 025
                                                     Dispersion
Inlet press., bar : 1.50
                                                     (B) Setting of injection pump with
                                                         externally-mounted governor
Overflow
 quantity min. 1/h: 100...120
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 300
Sleeve travel mm: 2.10...2.30
Calibrating nozzle-holder
 assembly : 0 681 343 009
                                                                  1/min: 650
                                                     2nd speed
                                                       Sleeve travel mm: 6.90...7.10
Opening
 pressure, bar : 172...175
                                                     3rd speed 1/min: 1200
                                                       Sleeve travel mm: 7.30...7.70
                                                     4th speed 1/min: 1250
                                                       Sleeve travel mm: 9.30...10.30
Test inj. tubing : 1 680 750 015
Outside diameter
                                                     SLEEVE POSITION
x Wall thickness
                                                     Control-lever position
                                                                  Degree: -1
1/min: 650
                  : 6.00x1.50x600
x Length mm
                                                     Cont.-rod travelmm: 13.00...14.00
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                     1st version
                                                     Speed
START OF DELIVERY
                                                                   1/min: 750
                                                     Del.quantity cm3/: 113.0...115.0
Test pressure, bar: 25...27
                                                                  1000H.: (110.5...117.5)
C18
```

Dispersion cm3/ : 4.00 1000H.: (7.00) HIGHEST RATED SPEED Setting point: Speed 1/min : 650 Contr.-rod trav.mm: 13.5 Testing: 1st c-rod trav.mm : 10.70 Speed 1/min: 1195...1210 2nd c-rod trav.mm : 4.00 1/min : 1240...1270 Speed 4th speed 1/min : 1350 C-rod trav.mm : 0.00...1.50 LOWEST RATED SPEED I Setting point w/out aux. spring 1/min : 300 Speed Contr.-rod trav.mm: 8.1 Testing: 1/min : 100 Speed C-rod trav.mm min : 10.20 1/min : 300 Speed : 8.00...8.20 : 2.00 C-rod trav.mm C-rod trav.mm 1/min : 420...460 1/min : 550 Speed Speed C-rod trav.mm max: 1.80 FUEL-DELIVERY CHARACTERISTICS Speed 1/min : 1150 Del.quantity cm3/: 132.0...136.0 1000H.: (129.0...139.0) cm3/: 7.00 1000H.: (10.0) Dispersion STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 130.0...150.0 1000H.: (126.0...154.0) Remarks:

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                  Prestroke mm
                                                                     : 4.00...4.10
                                                                     : (3.95...4.15)
                                                  Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8-7-2-6-3-5-
Note inst. in remarks column
Test sheet
                                                                       4- 1
                  : MB 14,6 N 3
                  : 13.05.87
Edition
Superceeded
Calibrating oil : ISO-4113
                                                  SD ang. spacing CS: 0-45-90-135-180-225-
                  : 0 401 848 737
                                                                       270-315
Combination no.
                                                  Tolerance + - 0
                                                                     : 0.50 (0.75)
Injection pump
Pump designation : PE8P110A320L$3802-10
                                                   SD mark cyl. no. : 8
EP type number : 0 411 818 710
                                                  BASIC SETTING
Governor
Governor design. : RQ750PA374R
Governer no. : 0 421 801 074
                                                   1st speed 1/mi: 700
Customer-spec. information
                                                  Contr.-rod trav.mm: 13.90...14.00
                  : DB
Customer
                                                  Del.quantity cm3/: 14.2...14.4
Engine
                  : OAIMLER-BENZ
                                                                100H.: (13.9...14.7)
1st version kW : 154.0
            1/min: 1500
                                                  Dispersion
                                                                cm3/:0.4
Speed
TEST BENCH REQUIREMENTS
                                                                100H.: (0.8)
                                                  2nd speed 1/min: 300.0
Contr.-rod trav. m: 8.3...8.4
Del.quantity cm3/: 1.3...1.9
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                100H.: (1.0...2.1)
Overflow valve
                   : 1 417 413 025
                                                                cm3/:0.4
                                                  Dispersion
                                                                100H.: (0.7)
Inlet press., bar : 1.50
                                                  FULL-LOAD DELIV. AT FULL-LOAD STOP
Overflow
 quantity min. 1/h: 100...120
                                                  1st version
                                                                1/min: 700
                                                  Speed
Calibrating nozzle-holder
                                                  Del.quantity cm3/: 142.0...144.0
            : 0 681 343 009
                                                               1000H.: (139.0...147.0)
assembly
                                                               cm3/ : 4.00
                                                  Dispersion
                                                               1000H.: (8.00)
Opening
pressure, bar : 172...175
                                                  HIGHEST RATED SPEED
Test inj. tubing : 1 680 750 015
                                                  Testing:
                                                  1st c=rod trav.mm : 12.90
                                                            1/min : 750...755
Outside diameter
                                                    Speed
x Wall thickness
                                                  2nd c-rod trav.mm : 6.10
                 : 6.00x1.50x600
                                                             1/min : 783...796
                                                    Speed
x Length mm
(A) Injection pump setting values
    Insp. values in parentheses
                                                  STARTING FUEL DELIVERY
    Set constant delivery quant.
    per values ____
                                                  Speed
                                                               1/min : 100
START OF DELIVERY
                                                  Del.quantity cm3/: 140.0...160.0
                                                               1000H.: ($36.0...164.0)
Test pressure, bar: 25...27
```

Remarks: APPLICATION Generator

```
: 4.00...4.10
: (3.95...4.15)
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                 Prestroke mm
Note inst. in remarks column
                                                 Contr.-rod trav.mm: 9.00...12.00
                                                                  : 8- 7- 2- 6- 3- 5-
                                                 Cam sequence
Test sheet
                                                                     4- 1
                  : MB 14,6 N 4
Edition
                  : 13.05.87
Superceeded
Calibrating oil : ISO-4113
                                                 SD ang. spacing CS: 0-45-90-135-180-225-
Combination no.
                  : 0 401 848 738
                                                                     270-315
                                                 Tolerance + - 0
                                                                   : 0.50 (0.75)
Injection pump
Pump designation : PE8P110A320LS3802-10
                                                 SD mark cyl. no. : 8
EP type number
                : 0 411 818 710
Governor
                                                 BASIC SETTING
Governor design. : RQ900PA310R
Governer no.
                 : 0 421 801 059
                                                 1st speed 1/mi: 850
                                                 Contr.-rod trav.mm: 13.90...14.00
Customer-spec. information
                 : DAIMLER-BENZ
Customer
                                                 Del.quantity cm3/: 15.2...15.4
Engine
                  : OM 422
                                                              100H.: (14.9...15.7)
1st version kW : 180.0
            1/min: 1800
                                                              cm3/:0.4
Speed
                                                 Dispersion
TEST BENCH REQUIREMENTS
                                                              190H.: (0.8)
Calibrating-oil inlet temp. °C
                                                 2nd speed
                                                              1/min: 300.0
                  : 38...42
                                                 Contr.-rod trav. m: 8.2...8.4
                                                 Del.quantity cm3/: 1.4...2.0
Overflow valve
                                                              100H.: (1.1...2.2)
                  : 1 417 413 025
                                                              cm3/:0.4
                                                 Dispersion
                                                              100H.: (0.7)
Inlet press., bar: 1.50
                                                FULL-LOAD DELIV. AT FULL-LOAD STOP
Overflow
 quantity min. 1/h: 100...120
                                                 1st version
                                                              1/min: 850
                                                 Speed
                                                 Del.quantity cm3/: 152.0...154.0
Calibrating nowzle-holder
           : 0 681 343 009
                                                             1000H.: (149.0...157.0)
 assembly
                                                            cm3/ : 4.00
                                                 Dispersion
                                                             1000H.: (8.00)
Opening
pressure, bar : 172...175
                                                HIGHEST RATED SPEED
Test inj. tubing : 1 680 750 015
                                                 Testing:
                                                 1st c-rod trav.mm : 12.90
                                                   Speed 1/min: 900...905
Outside diameter
x Wall thickness
                                                 2nd c-rod trav.mm : 6.30
                 : 6.00x1.50x600
                                                  Speed 1/min: 940...950
x Length mm
(A) Injection pump setting values
                                                STARTING FUEL DELIVERY
    Insp. values in parentheses
    Set constant delivery quant.
   per values ____
                                                 Speed
                                                             1/min : 100
                                                Del.quantity cm3/: 140.0...160.0
START OF DELIVERY
                                                             1000H.: (136.0...164.0)
Test pressure, bar: 25...27
```

Remarks: APPLICATION Generator C23

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                           : 4.00...4.10
                                                      Prestroke mm
                                                                          : (3.95...4.15)
                                                      Contr.-rod trav.mm: 9.00...12.00
Note inst. in remarks column
                                                      Cam sequence : 8- 7- 2- 6- 3- 5-
Test sheet
                    : MB 14,6 N 5
                                                                             4- 1
                    : 13.05.87
Edition
Superceeded
Calibrating oil : ISO-4113
                                                      SD ang. spacing CS: 0-45-90-135-180-225-
                   : 0 401 848 739
                                                                             270-315
Combination no.
                                                      Tolerance + - 0
                                                                          : 0.50 (0.75)
Injection pump
Pump designation : PE8P110A32ULS3802-10
                                                      SD mark cyl. no. : 8
EP type number : 0 411 818 710
Governor
                                                      BASIC SETTING
Governor design. : RQ1050PA310
Governer no. : 0 421 801 108
                                                       1st speed 1/mi: 1000
Customer-spec. information
                                                      Contr.-rod trav.mm: 14.30...14.40
                   : DAIMLER-BENZ
Customer
                                                      Del.quantity cm3/: 15.9...16.1
Engine
                   : OM 422
                                                                     190H.: (15.6...16.4)
ist version kW : 198.0
Speed
              1/min: 2100
                                                      Dispersion
                                                                     cm3/:0.4
TEST BENCH REQUIREMENTS
                                                                     100H.: (0.8)
Calibrating-oil inlet temp. °C
                                                      2nd speed
                                                                     1/min: 300.0
                   : 38...42
                                                      Contr.-rod trav. m: 8.2...8.4
                                                      Del.quantity cm3/: 1.4...2.0
100H.: (1.1...2.2)
Dispersion cm3/: 0.4
100H.: (0.7)
Overflow valve
                    : 1 417 413 025
Inlet press., bar: 1.50
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
Overflow
 quantity min. 1/h: 100...120
                                                      1st version
                                                      Speed 1/min: 1000
Del.quantity cm3/: 159.0...161.0
1000H.: (156.0...164.0)
Dispersion cm3/: 4.00
Calibrating nozzle-holder
             : 0 681 343 009
 assembly
                                                                    1000H.: (8.00)
Opening
pressure, bar : 172...175
                                                      HIGHEST RATED SPEED
Test inj. tubing : 1 680 750 015
                                                      Testing:
                                                      1st c-rod trav.mm : 13.30
Speed 1/min : 1050...1055
2nd c-rod trav.mm : 4.00
Outside diameter
x Wall thickness
                   : 6.00x1.50x600
                                                         Speed 1/min: 1108...1118
x Length mm
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      STARTING FUEL DELIVERY
    per values
                                                                   1/min : 100
                                                      Speed
                                                      Del.quantity cm3/: 140.0...160.0
START OF DELIVERY
                                                                    1000H.: (136.0...164.0)
Test pressure, bar: 25...27
```

Remarks: APPLICATION Generator C25

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                        : 4.00...4.10
                                                     Prestroke mm
                                                                        : (3.95...4.15)
                                                     Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
Note inst. in remarks column
Test sheet
                                                                           4- 1
                   : MB 14,6 M 2
: 27.03.87
Superceeded
Calibrating oil : ISO-4113
                                                     SD ang. spacing CS: 0-45-90-135-180-225-
Combination no.
                   : 0 401 848 740
                                                                          270-315
                                                     Tolerance + - 0
                                                                        : 0.50 (0.75)
Injection pump
Pump designation : PE8P110A320LS3813-10
                                                     SD mark cyl. no. : 8
EP type number : 0 411 818 712
                                                     BASIC SETTING
Governor
Governor design. : RQV350...1150PA378-6
Governer no. : 0 421 813 619
                                                     1st speed 1/mi: 1150
Customer-spec. information
                                                     Contr.-rod trav.mm: 11.50...11.60
Customer
                   : DAIMLER-BENZ
                                                     Del.quantity cm3/ : 13.1...13.3
Engine
                   : 0M422
                                                                   100H.: (12.8...13.5)
1st version kW : 206.0
             1/min: 2300
                                                                   cm3/:0.4
Speed
                                                     Dispersion
TEST BENCH REQUIREMENTS
                                                                   100H.: (0.8)
                                                     2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.4...7.6

Fel.quantity cm3/: 1.4...1.8
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                   100H.: (1.1...2.0)
cm3/: 0.4
100H.: (0.7)
Overflow valve
                   : 1 417 413 025
                                                     Dispersion
Inlet press., bar : 1.50
                                                     (B) Setting of injection pump with
                                                         externally-mounted governor
Overflow
 quantity min. 1/h: 100...120
                                                     SLEEVE TRAVELS
Calibrating nozzle-holder
                                                     1st speed 1/min: 350
                                                       Sleeve travel mm: 1.50...1.70
                  : 0 681 343 009
 assembly
                                                     2nd speed 1/min: 500
                                                       Sleeve travel mm: 1.70...1.90
Opening
                                                     3rd speed 1/min: 800
 pressure, bar : 172...175
                                                       Sleeve travel mm: 4.60...4.90
                                                     4th speed 1/min: 1175
Sleeve travel mm: 7.60...7.90
Test inj. tubing : 1 680 750 015
                                                     5th speed 1/min: 1300
                                                       Sleeve travel mm: 9.10...9.50
Outside diameter
x Wall thickness
                   : 6.00x1.50x600
                                                     SLEEVE POSITION
x Length mm
                                                     Control-lever position
                                                    Degree: -1
Speed 1/min: 1230
Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
    Set constant delivery quant.
    per values ____
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
START OF DELIVERY
Test pressure, bar: 25...27
                                                     1st version
                                                                  1/min: 1150
                                                     Speed
C26
```

```
Del.quantity cm3/: 131.0...133.0
             1000H.: (128.5...135.5)
            cm3/ : 4.00
Dispersion
             1000H.: (8.00)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 58...66
Testing:
1st c-rod ** av.mm : 10.50
             1/min : 1190...1200
  Speed
2nd c-rod trav.mm : 4.00
  Speed
            1/min : 1280...1310
            1/min : 1400
4th speed
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 10...18
Testing:
            1/min : 100
Speed
C-rod trav.mm min : 8.70
            1/min : 350
nm : 7.40...7.60
Speed
C-rod trav.mm
CONSTANT REGULATION
            1/min: 385...495
Speed
SWITCH-OVER POINT
            1/min : 270 (290)
Speed
FUEL-DELIVERY CHARACTERISTICS
            1/min : 600
Speed
Del.quantity cm3/: 109.0...113.0
1000H.: (106.0...116.0)
            cm3/: 6.00
1000H.: (9.00)
Dispersion
            1/min : 1150
Speed
Del.quantity cm3/: 84.0...87.0 *
             1000H.: (81.0...90.0)
Dispersion
             cm3/:6.00
             1000H.: (9.00)
STARTING FUEL DELIVERY
Speed
            1/min : 100
Del.quantity cm3/: 140.0...160.0
            1000H.: (136.0...164.0)
Remarks:
* = Set at reduced-delivery stop.
```

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 A 4 Edition : 13.05.87 Superceeded : 5.11.86 Calibrating oil : ISO-4113

Combination no. : 0 401 848 755

Injection pump

Pump designation : PE8P110A320L\$3802-10

EP type number : 0 411 818 710 Governor

Governor design. : RQ300/1150PA437-3 Governer no. : 0 421 801 230

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422

1st version kW : 184.0 Speed 1/min: 2300

TEST BENUA REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Over flow

quantity min. 1/h: 100...120

Calibrating nozzle-holder assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

```
: 4.00...4.10
: (3.95...4.15)
Prestroke mm
Contr.-rod trav.mm: 9.00...12.00
                 : 8- 7- 2- 6- 3- 5-
Cam sequence
SD ang. spacing CS: 0-45-90-135-180-225-
                     270-315
Tolerance + - ^{\circ} : 0.50 (0.75)
SD mark cyl. no. : 8
BASIC SETTING
               1/mi: 750
1st speed
Contr.-rod trav.mm: 11.30...11.40
              1/min: 300.0
2nd speed
Contr.-rod trav. m: 8.5...8.7
Del.quantity cm3/: 1.4...2.0
             100H.: (1.1...2.2)
cm3/: 0.4
100H.: (0.7)
Dispersion
SLEEVE POSITION
Control-lever position
            Degree: -1
              17min: 650
Speed
Cont.-rod travelmm: 13.20...14.00
FULL-LOAD DELIV. AT FULL-LOAD STOP
1st version
              1/min: 750
Speed
HIGHEST RATED SPEED
Setting point:
Speed 1/min : 650
Contr.-rod trav.mm: 13.6
Testing:
1st c-rod trav.mm : 10.00
  Speed 1/min: 1195...1210
2nd c-rod trav.mm : 4.00
           1/min : 1255...1285
1/min : 1350
  Speed
4th speed
  C-rod trav.mm : 0.00...1.50
LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed 1/min: 300 Contr.-rod trav.mm: 7.1
Testing:
            1/min : 100
Speed
```

Speed 1/min : 300
C-rod trav.mm : 7.00...7.20
C-rod trav.mm : 2.00 Speed 1/min : 400.,.440 TORQUE CONTROL Torque-control curve - 1st version 1st speed 1/min: 1150 C-rod trav.mm: 11.00...11.10 2nd speed 1/min: 600 C-rod trav.mm : 11.20...11.40 FUEL-DELIVERY CHARACTERISTICS 1/min : 600 Speed Del.quantity cm3/: 92.0...96.0 1000H.: (89.0...99.0) Dispersion cm3/: 6.00 1000H.: (9.0)

STARTING FUEL DELIVERY

Speed 1/min : 100 Del.quantity cm3/: 130.0...150.0 1000H.: (126.0...154.0)

Remarks:

DO1

C-rod trav.mm min : 8.50

```
: 3.50...3.60
: (3.45...3.65)
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Prestroke mm
Note inst. in remarks column
                                                     Contr.-rod trav.mm: 9.00...12.00
                                                                        : 1- 8- 4- 3- 6- 5-
7- 2
                                                     Cam sequence
Test sheet
                   : FIA 17.2 D
Edition
                   : 22.05.87
Superceeded
                   : 22.10.86
Calibrating oil
                   : ISO-4113
                                                     SD ang. spacing CS: 0-45-90-135-180-225-
                   : 0 401 848 757
                                                                          270-315
Combination no.
                                                     Tolerance + - 0
                                                                        : 0.50 (0.75)
Injection pump
Pump designation : PE8P12OA92O/5LS3827
                                                     SD mark cyl. no. : 1
EP type number
                   : 0 411 828 712
                                                     BASIC SETTING
Governor
Governor design. : RQV300...900PA475-1
                                                     1st speed 1/mi: 900
Governer no.
                   : 0 421 813 420
                                                     Contr.-rod trav.mm: 12.60...12.70
Customer-spec. information
                   : IVECO-FIAT
Customer
                                                     Del.quantity cm3/: 21.4...21.6
Engine
                   : 8280.22.201
                                                                   100H.: (21.1...21.9)
1st version kW : 309.0
              1/min: 1800
                                                                   cm3/:0.5
                                                     Dispersion
Speed
TEST BENCH REQUIREMENTS
                                                                   100H.: (0.9)
                                                     2nd speed 1/min: 300.0
Contr.-rod trav. m: 5.0...5.2
Del.quantity cm3/: 1.7...2.3
Calibrating-oil inlet temp. °C
                   : 38...42
Overflow valve
                                                                   100H.: (1.4...2.6)
                                                                   cm3/: 0.6
                   : 1 417 413 025
                                                     Dispersion
                                                                   100H.: (1.0)
Inlet press., bar : 1.50
                                                     (B) Setting of injection pump with
                                                         externally-mounted governor
Calibrating nozzle-holder
                  : 1 688 901 019
 assembly
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 300
Opening
                   : 207...210
                                                       Sleeve travel mm: 1.40...1.80
 pressure, bar
                                                                1/min: 450
                                                     2nd speed
                                                     Sleeve travel mm: 3.60...4.00
3rd speed 1/min: 750
Perforated-plate
 diameter mm
                   : 0,8
                                                       Sleeve travel mm: 6.10...6.50
                                                     4th speed 1/min: 900
Sleeve travel mm: 7.70...7.90
Test inj. tubing
                   : 1 680 750 067
                                                     SLEEVE POSITION
Outside diameter
x Wall thickness
                                                     Control-lever position
                   : 6.00x1.50x1000
                                                                 Degree: -1
x Length mm
                                                                  17min: 960
(A) Injection pump setting values
                                                     Cont.-rod travelmm: 15.20...17.80
    Insp. values in parentheses
Set constant delivery quant.
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                     1st version
START OF DELIVERY
                                                                   1/min: 900
                                                     Speed
                                                     Charge press. hPa : 900
Test pressure, bar: 25...27
003
```

```
Del.quantity cm3/: 214.0...216.0
             1000H.: (211.0...219.0) cm3/ : 5.00
Dispersion
             1000H.: (9.00)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 56...64
Testing:
1st c-rod trav.mm : 11.60
  Speed 1/min: 940...950
2nd c-rod trav.mm : 4.00
  Speed 1/min: 1050...1080
th speed 1/min: 1200
4th speed
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 7...15
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 6.40
           1/min : 300
Speed
                 : 5.00...5.20
C-rod trav.mm
CONSTANT REGULATION
             1/min : 310...415
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
             1/min : 500
Speed
            hPa : 900
Pressure
Contr.-rod trav.mm: 12.60...12.70
Measurement
            1/min : 500
Speed
1st pressure hPa : -
 C-rod trav.mm
                   : 9.00...9.30
                  : 440
2nd pressure hPa
                  : 11.60...11.70
: 340
 C-rod trav.mm
3rd pressure hPa
  C-rod trav.mm
                   : 9.60...10.00
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 900
Speed 1/min: 550
Del.quantity cm3/: 229.0...237.0
1000H.: (226.0...240.0)
Charge press. hPa : -
            1/min : 500
Speed
```

Del.quantity cm3/: 133.0...135.0 1000H.: (130.0...138.0)

STARTING FUEL DELIVERY

Speed 1/min: 100
Del.quantity cm3/: 170.0...200.0
1000H.: (166.0...204.0)
On activation of the starting solenoid, the start position must be reached.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    START OF DELIVERY
                                                                       : 4.00...4.10
Note inst. in remarks column
                                                    Prestroke mm
                                                                       : (3.95...4.15)
Test sheet
                                                    Contr.-rod trav.mm: 9.00...12.00
                   : MB 14,6 F 1
                                                                       : 8- 7- 2- 6- 3- 5-
                  : 09.03.87
Edition
                                                    Cam sequence
Superceeded
Superceeded : 10.85
Calibrating oil : ISO-4113
                                                                         4- 1
                  : 0 401 848 759
Combination no.
                                                    SD ang. spacing CS: 0-45-90-135-180-225-
Injection pump
                                                                         270-315
Pump designation : PEBP120A320LS3811-10
                                                    Tolerance + - 0
                                                                       : 0.50 (0.75)
EP type number
                 : 0 411 828 714
Governor
                                                    SD mark cyl. no. : 8
Governor design. : RQ300/1150PA556-1
Governer no.
                   : 0 421 801 290
                                                    BASIC SETTING
                                                    1st speed 1/mi: 1150
Customer-spec. information
Customer
                   : DAIMLER-BENZ
                                                    Contr.-rod trav.mm: 10.40...10.50
Engine
                   : 0M422A
                                                    Del.quantity cm3/: 16.0...16.2
1st version kW : 243.0
             1/min: 2300
                                                                  100H.: (15.7...16.5)
Speed
TEST BENCH REQUIREMENTS
                                                    Dispersion
                                                                  cm3/:0.5
Calibrating-oil inlet temp. °C
                                                                  100H.: (0.9)
                   : 38...42
                                                    2nd speed 1/min: 300.0
Contr.-rod trav. m: 5.1...5.3
Del.quantity cm3/: 1.4...2.2
Overflow valve
                   : 1 417 413 025
                                                                  100H.: (1.1...2.5)
                                                                  cm3/: 0.8
100H.: (1.2)
Inlet press., bar : 1.50
                                                    Dispersion
Overflow
 quantity min. 1/h: 100...120
                                                    (B) Setting of injection pump with
                                                        externally-mounted governor
Calibrating nozzle-holder
                  : 1 688 901 019
                                                    SLEEVE TRAVELS
 assembly
                                                    1st speed 1/min: 300
Opening
                                                      Sleeve travel mm: 3.30...3.50
                                                    2nd speed 1/min: 650
 pressure, bar
                   : 207...210
                                                      Sleeve travel mm: 6.90...7.10
                                                    3rd speed 1/min: 1200
Sleeve travel mm: 7.20...7.60
Perforated-plate
 diameter mm
                   : 0.8
                                                    4th speed 1/min: 1250
Sleeve travel mm: 9.00...9.50
Test inj. tubing : 1 680 750 067
                                                    SLEEVE POSITION
Outside diameter
                                                    Control-lever position
                                                                Degree: 108
1/min: 600
x Wall thickness
                 : 6.00x1.50x1000
x Length mm
                                                    Speed
                                                    Cont.-rod travelmm: 14.60...16.40
(A) Injection pump setting values
    Insp. values in parentheses
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
    Set constant delivery quant.
    per values
                                                    1st version
                                                    Speed
                                                                  1/min: 1150
```

```
Del.quantity cm3/: 160.0...162.0
1000H:: (157.0...165.0)
Dispersion cm3/: 5.00
              1000H.: (9.00)
HIGHEST RATED SPEED
Setting point:
             1/min : 600
Speed
Contra-rod trav.mm: 15.5
Testing:
1st c-rod trav.mm : 9.40
            1/min : 1195...1210
  Speed
2nd c-rod trav.mm : 4.00
             1/min : 1245...1275
  Speed
             1/min : 1400
4th speed
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed `
            1/min : 300
Contr.-rod trav.mm: 5.2
Testing:
Speed
             1/min : 100
C-rod trav.mm min: 6.70
             1/min : 300
Speed
                  : 5.10...5.30
: 2.00
C-rod trav.mm
C-rod trav.mm
             1/min: 360...400
Speed
SWITCH-OVER POINT
             1/min : 220 (240)
Speed
FUEL-DELIVERY CHARACTERISTICS
             1/min : 600
Speed
Del.quantity cm3/: 152.0...158.0
1000H.: (149.0...161.0)
Dispersion cm3/: 8.00
              1000H.: (12.0)
STARTING FUEL DELIVERY
             1/min : 100
Speed
Del.quantity cm3/: 140.0...160.0
             1000H.: (136.0...164.0)
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     START OF DELIVERY
                                                     Test pressure, bar: 25...27
Note inst. in remarks column
                                                                         : 4.00...4.10
                                                     Prestroke mm
Test sheet
                    : MB 14,6 Q 8
                                                                         : (3.95...4.15)
                                                     Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
Edition
                    : 13.05.87
Superceeded
                                                                           4- 1
Calibrating oil : ISO-4113
Combination no.
                   : 0 401 848 760
                                                     SD ang. spacing CS: 0-45-90-135-180-225-
Injection pump
Pump designation : PE8P12OA320L$3807-10
                                                                           270-315
                                                     Tolerance + - 0
                                                                         : 0.50 (0.75)
EP type number : 0 411 828 713
Governor
Governor design. : RQ300/1150PA546-10
                                                     SD mark cyl. no. : 8
Governer no.
                  : 0 421 801 376
                                                     BASIC SETTING
Customer-spec. information
                                                     1st speed
Customer
                   : DAIMLER-BENZ
                                                                    1/mi: 1150
                                                     Contr.-rod trav.mm: 10.70...10.80
Engine
                    : OM 422 A
1st version kW : 243.0
                                                     Del.quantity cm3/: 15.9...16.1
Speed
              1/min: 2300
                                                                    100H.: (15.6...16.4)
TEST BENCH REQUIREMENTS
                                                                    cm3/:0.5
                                                     Dispersion
Calibrating-oil inlet temp. °C
                  : 38...42
                                                                    100H.: (0.9)
                                                     2nd speed 1/min: 300.0
Contr.-rod trav. m: 5.3...5.5
Del.quantity cm3/: 1.6...2.2
100H.: (1.3...2.5)
Overflow valve
                    : 1 417 413 025
Inlet press., bar : 1.50
                                                                    cm3/: 0.8
100H.: (1.2)
                                                     Dispersion
Overflow
 quantity min. 1/h: 100...120
                                                      (B) Setting of injection pump with
                                                          externally-mounted governor
Calibrating nozzle-holder
          : 1 688 901 019
 assembly
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 300
Opening
                                                       Sleeve travel mm: 1.60...1.80
 pressure, bar
                   : 207...210
                                                     2nd speed 1/min: 650
                                                       Sleeve travel mm: 5.80...6.20
Perforated-plate
                                                     3rd speed 1/min: 1150
 diameter mm
                    : 0,8
                                                       Sleeve travel mm: 6.20...6.30
                                                     4th speed 1/min: 1200
                                                     Sleeve travel mm: 6.50...6.80
5th speed 1/min: 1270
Sleeve travel mm: 8.50...9.00
Test inj. tubing : 1 680 750 067
Outside diameter
x Wall thickness
                                                     SLEEVE POSITION
                  : 6.00x1.50x1000
x Length mm
                                                     Control-lever position
(A) Injection pump setting values
                                                                  Degree: 108
    Insp. values in parentheses
Set constant delivery quant.
                                                     Speed
                                                                   17min: 600
                                                     Cont.-rod travelmm: 19.20...20.80
    per values
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
```

1st version Speed 1/min: 1150 Charge press. hPa : 700 Del.quantity cm3/: 159.0...161.0 1000H:: (156.0...164.0) Dispersion cm3/: 5.00 1000H.: (9.00) HIGHEST RATED SPEED Setting point: 1/min : 600 Speed Contr.-rod trav.mm: 20.0 Testing: 1st c-rod trav.mm : 9.70 1/min: 1195...1210 Speed 2nd c-rod trav.mm : 4.00 1/min : 1255...1285 1/min : 1350 Speed 4th speed C-rod trav.mm : 0.00...1.50 LOWEST RATED SPEED I Setting point w/out aux. spring Speed 1/min : 300 Contr.-rod trav.mm: 5.4 Testing: Speed 1/min : 200 C-rod trav.mm min : 7.10 1/min : 300 Speed C-rod trav.mm : 5.30...5.50 : 2.00 C-rod trav.mm 1/min : 370...420 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque-control curve - 1st version 1/min : 1150 1st speed C-rod trav.mm : 10.70...10.80 2nd speed 1/min: 750 C-rod trav.mm : 11.00...11.20 compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : -Contr.-rod trav.mm: 10.00...10.30 Measurement 1/min : 500 Speed 1st pressure hPa : 450 C-rod trav.mm : 10.10...10.20 2nd pressure hPa : 500 : 10.50...10.70 C-rod trav.mm

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SWITCH-OVER POINT Speed 1/min : 220 (240) FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa: 700 1/min : 750 Speed Del.quantity cm3/: 173.5...175.5 1000H.: (170.5...178.5) Dispersion cm3/: 8.00 1000H.: (12.0) Charge press. hPa : -1/min : 500 Speed Del.quantity cm3/: 138.0...140.0 1000H.: (135.0...143.0) cm3/:8.00Dispersion 1000H.: (12.0) STARTING FUEL DELIVERY

1/min : 100

1000H.: (136.0...164.0)

Del.quantity cm3/: 140.0...160.0

Remarks:

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet Edition Superceeded : MB 14,6 Q 7 : 09.03.87 Calibrating oil : ISO-4113 : 0 401 848 761 Combination no. Injection pump Pump designation : PE8P12OA32OL\$3807-10 EP type number : 0 411 828 713 Governor Governor design. : RQ300/1150PA546-9 Governer no. : 0 421 801 375 Customer-spec. information Customer : DAIMLER-BENZ : 0M422 LA Engine 1st version kW : 276.0 Speed 1/min: 2300 TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Overflow quantity min. 1/h: 100...120 Calibrating nozzle-holder assembly : 1 688 901 019 Opening pressure, bar : 207...210

Perforated-plate diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

```
START OF DELIVERY
Test pressure, bar: 25...27
                                                    1st version
                                                   Speed 1/min: 1150
Charge press. hPa: 700
Prestroke mm
                   : 4.00...4.10
                                                   Del.quantity cm3/: 175.0...177.0
1000H.: (172.0...180.0)
                   : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
                                                   Dispersion cm3/ : 5.00
                  : 8- 7- 2- 6- 3- 5-
Cam sequence
                                                                1000H.: (9.00)
                                                    HIGHEST RATED SPEED
SD ang. spacing CS: 0-45-90-135-180-225-
                                                    Setting point:
                                                    Speed 1/min: 600
                     270-315
Tolerance + - \circ : 0.50(0.75)
                                                    Contr.-rod trav.mm: 20.0
SD mark cyl. no. : 8
                                                    Testing:
                                                    1st c-rod trav.mm : 10.50
BASIC SETTING
                                                      Speed 1/min: 1195...1210
                                                    2nd c-rod trav.mm : 4.00
                                                               1/min : 1255...1285
1/min : 1400
1st speed 1/mi: 1150
                                                      Speed
                                                    4th speed
Contr.-rod trav.mm: 11.50...11.60
                                                      C-rod trav.mm : 0.00...1.50
Del.quantity cm3/: 17.5...17.7
                                                   LOWEST RATED SPEED I
                                                    Setting point w/out aux. spring
              100H.: (17.2...18.0)
                                                    Speed 1/min : 300
                                                    Contr.-rod trav.mm: 5.1
Dispersion
             cm3/:0.5
                                                    Testing:
                                                   Speed 1/min: 200
C-rod trav.mm min: 7.10
Speed 1/min: 300
              100H.: (0.9)
             1/min: 300.0
2nd speed
Contr.-rod trav. m: 5.0...5.2
                                                   C-rod trav.mm : 5.00...5.29
C-rod trav.mm : 2.00
Del.quantity cm3/ : 1.2...2.0
                                                               1/min : 365...415
              100H.: (0.9...2.3)
                                                    Speed
             cm3/: 0.8
100H.: (1.2)
Dispersion
                                                    TORQUE CONTROL
                                                   Dimension a mm : 0.20
(B) Setting of injection pump with externally-mounted governor
                                                    Torque-control curve - 1st version
                                                    1st speed 1/min : 1150
                                                      C-rod trav.mm : 11.50...11.60
                                                    2nd speed 1/min: 750
SLEEVE TRAVELS
1st speed 1/min: 300
                                                      C-rod trav.mm : 11.80...12.00
  Sleeve travel mm: 1.60...1.80
2nd speed 1/min: 600
                                                    compensator (LDA,ADA,ALDA)
Sleeve travel mm: 5.90...6.10
3rd speed 1/min: 1150
Sleeve travel mm: 6.20...6.30
                                                    1st version
4th speed 1/min: 1210
                                                   Setting
  Sleeve travel mm: 6.50...6.80
                                                                1/min : 500
                                                    Speed
5th speed 1/min: 1270
                                                                hPa : -
                                                   Pressure
  Sleeve travel mm: 8.50...9.00
                                                   Contr.-rod trav.mm: 10.20...10.40
SLEEVE POSITION
                                                   Measurement
Control-lever position
                                                               1/min : 500
                                                   Speed
            Degree: 108
             17min: 600
                                                   1st pressure hPa : 410
                                                    C-rod trav.mm : 10.50...10.60
Cont.-rod travelmm: 19.20...20.80
                                                   2nd pressure hPa : 490
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                    C-rod trav.mm : 11.10...11.40
010
```

```
SWITCH-OVER POINT
Speed
                 1/min : 220 (240)
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 700
Speed 1/min : 750
Speed 1/min: 750
Del.quantity cm3/: 187.0...190.0
1000H.: (184.0...193.0)
Dispersion cm3/: 8.00
1000H.: (12.0)
Charge press. hPa : -
Speed
                  1/min : 500
Del.quantity cm3/: 137.0...139.0
1000H.: (134.0...142.0)
                  cm3/: 8.00
1000H.: (12.0)
Dispersion
STARTING FUEL DELIVERY
Speed
                  1/min : 100
Del.quantity cm3/: 140.0...160.0
1000H.: (136.0...164.0)
Remarks:
```

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet Edition Superceeded : MB 14,6 K 8 : 30.03.87 Calibrating oil : ISO-4113 : 0 401 848 762 Combination no. Injection pump Pump designation : PE8P12OA32OL\$3807-10 EP type number : Q 411 828 713 Governor Governor design. : RQV300...1150PA545-7 Governer no. : 0 421 813 595 Customer-spec. information Customer : DAIMLER-BENZ : OM 422 A Engine 1st version kW : 243.0 Speed 1/min: 2300 TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Over flow quantity min. 1/h: 100...120 Calibrating nozzle-holder assembly : 1 688 901 019 Opening | pressure, bar : 207...210

Perforated-plate diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

Speed 1/min: 1150 Charge press. hPa: 700 START OF DELIVERY Test pressure, bar: 25...27 Del.quantity cm3/: 159.0...161.0 1000H.: (156.0...164.0) Dispersion cm3/: 5.00 1000H.: (9.00) : 4.00...4.10 Prestroke mm : (3.95...4.15) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 8-7-2-6-3-5-4- 1 HIGHEST RATED SPEED 1st version Control-lever position degrees: 46...54 SD ang. spacing CS: 0-45-90-135-180-225-270-315 Testing: Tolerance + - 0 : 0.50 (0.75)1st c-rod trav.mm: 9.70 Speed 1/min: 1190...1200 SD mark cyl. no. : 8 2nd c-rod trav.mm : 4.00 Speed 1/min: 1270...1300 4th speed 1/min: 1400 BASIC SETTING C-rod trav.mm : 0.00...1.00 1/mi: 1150 1st speed LOWEST RATED SPEED I Contr.-rod trav.mm: 10.70...10.80 Control-lever position degrees: 15...23 Del.quantity cm3/: 15.9...16.1 Testing: 100H.: (15.6...16.4) Speed 1/min : 100 C-rod trav.mm min : 6.70 Speed 1/min : 300 Dispersion cm3/:0.5C-rod trav.mm : 5.00...5.20 100H.: (0.9) CONSTANT REGULATION Speed 1/min: 300...400 1/min: 300.0 2nd speed Contr.-rod trav. m: 5.0...5.2 Del.quantity cm3/: 1.2...1.8 TORQUE CONTROL 100H.: (0.9...2.1) cm3/: 0.8 100H.: (1.2) Torque-control curve - 1st version 1st speed 1/min: 1150 Dispersion C-rod trav.mm : 10.70...10.80 2nd speed 1/min : 750 (B) Setting of injection pump with externally-mounted governor C-rod trav.mm : 11.00...11.20 compensator (LDA, ADA, ALDA) SLEEVE TRAVELS 1st speed 1/min: 300 Sleeve travel mm: 1.60...1.80 2nd speed 1/min: 800 1st version Setting Sleeve travel mm: 6.00...6.20
3rd speed 1/min: 1200
Sleeve travel mm: 8.00...8.20 1/min : 500 Speed Pressure hPa : -Contr.-rod trav.mm: 10.00...10.30 4th speed 1/min: 1300 Sleeve travel mm: 9.00...9.50 Measurement 1/min : 500 Speed SLERVE POSITION Control-lever position 1st pressure hPa : 450 C-rod trav.mm : 10.10...10.20 2nd pressure hPa : 500 Degree: -1 17min: 1190 Speed C-rod trav.mm : 10.50...10.70 Cont.-rod travelmm: 15.20...17.80 FULL-LOAD DELIV. AT FULL-LOAD STOP SWITCH-OVER POINT Speed 1/min: 220 (240) 1st version

## FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 700 Speed 1/min : 750 Del.quantity cm3/: 173.5...175.5 1000H.: (170.5...178.5) Dispersion cm3/: 7.00 1000H.: (12.0) Charge press. hPa: 700

Charge press. hPa : -Speed 1/min : 5 1/min : 500

Del.quantity cm3/: 138.0...140.0 1000H.: (135.0...143.0) Dispersion cm3/: 7.00

1000H.: (12.0)

## STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : MB 14,6 R Edition : 13.05.87 Superceeded : 10.85 Calibrating oil : ISO-4113 Combination no. : 0 401 848 764 Injection pump Pump designation : PEBP110A320LS3813-10 EP type number : 0 411 818 712 Governor Governor design. : RQ300/1150PA187-3 Governer no. : 0 421 801 133 Customer-spec. information Customer : DAIMLER-BENZ Engine : 0M422 1st version kW : 206.0 Speed 1/min: 2300 TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Overflow quantity min. 1/h: 100...120 Calibrating nozzle-holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test inj. tubing : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY
Test pressure, bar: 25...27

```
Prestroke mm
                     : 4.00...4.10
                     : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 8- 7- 2- 6- 3- 5-
                       4- 1
SD ang. spacing CS: 0-45-90-135-180-225-
                       270-315
Tolerance + - 0: 0.50 (0.75)
SD mark cyl. no. : 8
BASIC SETTING
1st speed
                1/mi: 1150
Contr.-rod trav.mm: 11.70...11.80
Del.quantity cm3/: 13.2...13.4
               100H.: (13.0...13.7)
               cm3/:0.4
Dispersion
               100H.: (0.8)
2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.9...8.1
Del.quantity cm3/: 1.5...2.1
100H.: (1.2...2.3)
Dispersion cm3/: 0.4
               100H.: (0.7)
SLEEVE POSITION
Control-lever position
             Degree: -1
1/min: 650
Speed
Cont.-rod travelmm: 13.00...14.00
FULL-LOAD DELIV. AT FULL-LOAD STOP
1st version
               1/min: 1150
Speed
Del.quantity cm3/: 132.5...134.5
1000H.: (130.0...137.0)
Dispersion cm3/: 4.00
              1000H.: (8.00)
HIGHEST RATED SPEED
Setting point:
Speed 1/min : 650
Contr.-rod trav.mm: 13.5
Testing:
1st c-rod trav.mm : 10.70
  Speed 1/min: 1195...1210
2nd c-rod trav.mm: 4.00
```

```
Speed
              1/min : 1240...1270
4th speed 1/min: 1350
  C-rod trav.mm : 0.00...1.50
LOWEST RATED SPEED I
Setting point w/out aux. spring Speed 1/min: 300
Contr.-rod trav.mm: 8.0
Testing:
              1/min : 100
Speed
C-rod trav.mm min: 9.60
Speed 1/min: 300
C-rod trav.mm: 7.90...8.10
C-rod trav.mm: 2.00
Speed 1/min : 420...460
FUEL-DELIVERY CHARACTERISTICS
Speed
              1/min : 600
Del.quantity cm3/: 109.5...115.5
              1000H.: (106.5...118.5)
cm3/: 8.00
1000H.: (11.0)
Dispersion
STARTING FUEL DELIVERY
```

Remarks:

D16

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    START OF DELIVERY
                                                    Test pressure, bar: 25...27
Note inst. in remarks column
                                                                        : 4.00...4.10
                                                    Prestroke mm
Test sheet
                   : MB 14,6 U 2
                                                                        : (3.95...4.15)
Edition
                   : 09.03.87
                                                    Contr.-rod trav.mm: 9.00...12.00
                                                                       : 8- 7- 2- 6- 3-
                                                                                            5-
Superceeded
                                                    Cam sequence
                                                                          4- 1
Calibrating oil
                   : ISO-4113
Combination no.
                   : 0 401 848 766
                                                    SD ang. spacing CS: 0-45-90-135-180-225-
Injection pump
                   : PE8P120A320LS3816-10
                                                                          270-315
Pump designation
EP type number
                                                    Tolerance + - 0
                   : 0 411 828 715
                                                                        : 0.50 (0.75)
Governor
Governor design. : RQ300/1150PA546-10
Governer no. : 0 421 801 376
                                                    SD mark cyl. no. : 8
                                                    BASIC SETTING
Customer-spec. information
                                                                   1/mi: 1150
Customer
                   : DAIMLER-BENZ
                                                    1st speed
                                                    Contr.-rod trav.mm: 10.70...10.80
                   : OM 422 A
Engine
1st version kW : 243.0
                                                    Del.quantity cm3/: 15.9...16.1
              1/min: 2300
Speed
                                                                  100H.: (15.6...16.4)
TEST BENCH REQUIREMENTS
                                                    Dispersion
                                                                  cm3/:0.5
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                  100H.: (0.9)
Overflow valve
                                                    2nd speed
                                                                  1/min: 300.0
                                                    Contr.-rod trav. m: 4.9...5.1
                   : 1 417 413 025
                                                    Del.quantity cm3/: 1.2...1.8
Inlet press., bar : 1.50
                                                                  100H.: (0.9...2.1)
                                                                  cm3/: 0.8
100H.: (1.2)
                                                    Dispersion
Overflow
 quantity min. 1/h: 100...120
                                                     (B) Setting of injection pump with
Calibrating nozzle-holder
                                                        externally-mounted governor
                   : 1 688 901 019
 assembly
                                                    SLEEVE TRAVELS
                                                    1st speed 1/min: 300
Opening
                   : 207...210
                                                      Sleeve travel mm: 2.00...2.40
 pressure, bar
                                                    2nd speed 1/min: 650
                                                      Sleeve travel mm: 5.80...6.20
d speed 1/min: 1200
Sleeve travel mm: 6.50...6.90
Perforated-plate
                                                    3rd speed
 diameter mm
                   : 0,8
                                                    4th speed 1/min: 1250
Sleeve travel mm: 8.00...8.80
Test inj. tubing
                  : 1 680 750 067
                                                    SLEEVE POSITION
ûutside diameter
x Wall thickness
                                                    Control-lever position
                  : 6.00x1.50x1000
                                                                 Degree: 45
x Length mm
                                                                  17min: 600
                                                    Speed
                                                    Cont.-rod travelmm: 19.20...20.80
(A) Injection pump setting values
    Insp. values in parentheses
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
    Set constant delivery quant.
    per values
                                                    1st version
D18
```

Speed 1/min: 1150 Charge press. hPa : 700 Del.quantity cm3/: 159.0...161.0 1000H.: (156.0...164.0) cm3/ : 5.00Dispersion 1000H.: (9.00) HIGHEST RATED SPEED Setting point: Speed 1/min : 600 Contr.-rod trav.mm: 20.0 Testing: 1st c-rod trav.mm : 9.70 1/min: 1195...1210 Speed 2nd c-rod trav.mm : 4.00 1/min : 1250...1280 Speed 1/min : 1350 4th speed C-rod trav.mm : 0.00...1.50 LOWEST RATED SPEED I Setting point w/out aux. spring 1/min : 300 Speed Contr.-rod trav.mm: 5.0 Testing: 1/min : 100 Speed C-rod trav.mm min : 6.60 1/min : 300 Speed : 4.90...5.10 C-rod trav.mm C-rod trav.mm : 2.00 1/min: 365...415 Speed TORQUE CONTROL Torque-control curve - 1st version 1/min : 1150 1st speed C-rod trav.mm : 10.70...10.80 2nd speed 1/min : 750 C-rod trav.mm : 10.90...11.10 compensator (LDA,ADA,ALDA) 1st version Setting Speed 1/min : 500 Pressure hPa Contr.-rod trav.mm: 10.00...10.30 Measurement 1/min : 500 Speed 1st pressure hPa : 450 C-rod trav.mm : 10.10...10.20 2nd pressure hPa : 500 : 10.50...10.70 C-rod trav.mm SWITCH-OVER POINT 1/min : 220 (240) Speed

D19

FUEL-DELIVERY CHARACTERISTICS

1st version Charge press. hPa : 700

1/min : 750 Speed

Del.quantity cm3/: 173.5...175.5 1000H.: (170.5...178.5) Dispersion cm3/: 7.00 1000H.: (11.0)

Charge press. hPa : -1/min : 500 Speed

Del.quantity cm3/: 138.0...140.0

1000H.: (135.0...143.0) cm3/: 7.00 Dispersion

1000H.: (11.0)

STARTING FUEL DELIVERY

1/min : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000H.: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : MB 14,7 D 1 : 10.12.86

Calibrating oil : ISO-4113

Combination no. : 0 401 848 782

Injection pump

Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714

Governor

Governor design. : RQV300...950PA829-1K

Governer no. : 0 421 815 167

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442

1st version kW : 206.0 1/min: 1900 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

Del.quantity cm3/: 133.0...135.0 1000H.: (130.5...137.5) Dispersion cm3/: 4.00 : 4.00...4.10 : (3.95...4.15) Prestroke mm Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 8- 7- 2- 6- 3- 5-1000H.: (8.00) 4- 1 HIGHEST RATED SPEED 1st version Control-lever SD ang. spacing CS: 0-45-90-135-180-225position degrees: 57...65 270-315 Tolerance + - 0 : 0.50 (0.75) Testing: 1st c-rod trav.mm : 12.50 Speed 1/min : 990...1000 SD mark cyl. no. : 8 2nd c-rod trav.mm : 4.00 Speed 1/min: 1095...1125 4th speed 1/min: 1300 BASIC SETTING 1st speed 1/mi: 950 C-rod trav.mm : 0.00...1.50 Contr.-rod trav.mm: 13.50...13.60 LOWEST RATED SPEED I Control-lever Del.quantity cm3/ : 13.3...13.5 position degrees: 14...22 100H.: (13.0...13.7) Testing: 1/min : 100 Speed C-rod trav.mm min : 10.50 Dispersion cm3/:0.4Speed 1/min: 300 C-rod trav.mm : 8.80...9.00 100H.: (0.8) CONSTANT REGULATION 1/min: 300.0 2nd speed Speed 1/min: 300...450 Contr.-rod trav. m: 8.8...9.0 Del.quantity cm3/: 1.5...2.1 TORQUE CONTROL 100H.: (1.2...2.3) cm3/: 0.4 100H.: (0.7) Torque-control curve - 1st version Dispersion 1st speed 1/min: 950 C-rod trav.mm : 13.50...13.60 2nd speed 1/min: 600 (B) Setting of injection pump with C-rod trav.mm : 12.90...13.10 3rd speed 1/min : 750 externally-mounted governor C-rod trav.mm : 13.20...13.40 SLEEVE TRAVELS 1st speed 1/min: 300 Sleeve travel mm: 1.10...1.30
2nd speed 1/min: 500
Sleeve travel mm: 3.20...3.40
3rd speed 1/min: 800 SWITCH-OVER POINT 1/min : 220 (240) Speed FUEL-DELIVERY CHARACTERISTICS Speed 1/min: 600 Del.quantity cm3/: 118.0...121.0 1000H.: (115.0...124.0) cm3/: 6.00 Sleeve travel mm: 8.00...8.40 5th speed 1/min: 1125 Dispersion 1000H.: (9.00)

Speed 1/min: 750

Del.quantity cm3/: 122.0...126.0
1000H.: (119.0...129.0)

Dispersion cm3/: 6.00
1000H.: (9.00) Sleeve travel mm: 9.60...10.00 SLEEVE POSITION Control-lever position Degree: -1 1/min: 975 Speed Cont.-rod travelmm: 15.20...17.80 FULL-LOAD DELIV. AT FULL-LOAD STOP STARTING FUEL DELIVERY 1st version Speed 1/min : 100 Speed 1/min: 950 021

Del.quantity cm3/: 120.0...140.0 1000H.: (116.0...144.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : MB 14,7 I Edition : 13.05.87 Superceeded : 28.10.86 : MB 14,7 D 3 Calibrating oil : ISO-4113 Combination no. : 0 401 848 784 Injection pump Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714 Governor Governor design. : RQV300...950PA524-11 Governer no. : 0 421 813 578 Customer-spec. information : DAIMLER-BENE Customer : 0M442 Engine 1st version kW : 191.0 1/min: 1900 Speed TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Calibrating nozzle-holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test inj. tubing : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_\_

START OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 8- 7- 2- 6- 3- 5-4- 1 SD ang. spacing CS: 0-45-90-135-180-225-270-315 Tolerance + - 0 : 0.50 (0.75) SD mark cyl. no. : 8 BASIC SETTING 1st speed 1/mi: 950 Contr.-rod trav.mm: 12.00...12.10 Del.quantity cm3/: 11.8...12.0 100H.: (11.5...12.2) Dispersion cm3/:0.4100H.: (0.8) 2nd speed 1/min: 300.0 Contr.-rod trav. m: 8.3...8.5 Del.quantity cm3/: 1.5...2.1 100H.: (1.2...2.3) Dispersion cm3/: 0.4 100H.: (0.7) (B) Setting of injection pump with externally-mounted governor SLEEVE TRAVELS 1st speed 1/min: 300 Sleeve travel mm: 1.00...1.20 2nd speed 1/min: 550 Sleeve travel mm: 4.90...5.10 3rd speed 1/min: 1000 Steeve travel mm: 8.20...8.50
4th speed 1/min: 1050
Steeve travel mm: 9.10...9.40 SLEEVE POSITION Control-lever position Degree: -1 Speed 17min: 1000 Cont.-rod travelmm: 15.20...17.80 FULL-LOAD DELIV. AT FULL-LOAD STOP 1st version Speed 1/min: 950 Del.quantity cm3/: 118.0...120.0 1000H.: (115.5...122.5)

Dispersion cm3/ : 4.00 1000H.: (8.00) HIGHEST RATED SPEED 1st version Control-lever position degrees: 51...59 Testing: 1st c-rod trav.mm : 11.00 1/min: 990...1000 Speed 2nd c-rod trav.mm: 4.00 1/min : 1050...1080 1/min : 1300 Speed 4th speed C-rod trav.mm : 0.00...1.50 LOWEST RATED SPEED I Control-lever position degrees: 18...26 Testing: 1/min : 100 Speed C-rod trav.mm min : 10.00 Speed 1/min : 300 C-rod trav.mm : 8.30...8.50 CONSTANT REGULATION 1/min : 300...450 Speed SWITCH-OVER POINT Speed 1/min : 270 (290) FUEL-DELIVERY CHARACTERISTICS 1/min : 600 Speed Del.quantity cm3/: 108.0...112.0 1000H.: (105.0...115.0) cm3/: 6.00 1000H.: (11.0) Dispersion

STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 120.0...140.0 1000H.: (116.0...144.0)

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                   : 4.00...4.10
                                                 Prestroke mm
                                                                   : (3.95...4.15)
Note inst. in remarks column
                                                 Contr.-rod trav.mm: 9.00...12.00
                                                 Cam sequence : 8- 7- 2- 6- 3- 5-
Test sheet
                 : MB 14,7 C 2
: 13.05.87
                                                                      4- 1
Superceeded
Calibrating oil : ISO-4113
                                                 SD ang. spacing CS: 0-45-90-135-180-225-
Combination no.
                 : 0 401 848 786
                                                                     270-315
                                                 Tolerance + - 0 : 0.50 (0.75)
Injection pump
Pump designation : PE8P110A320LS3842
                                                 SD mark cyl. no. : 8
EP type number : 0 411 818 714
                                                 BASIC SETTING
Governor
Governor design.: RQ300/1050PA827-3K
Governer no. : 0 421 803 095
                                                 1st speed
                                                              1/mi: 1050
                                                 Contr.-rod trav.mm: 12.90...13.00
Customer "spec. information
                 : DAIMLER-BENZ
Customer
                                                 Del.quantity cm3/ : 13.2...13.4
Engine
                  : 0M442
                                                               100H.: (12.9...13.6)
1st version kW : 213.0
Speed 1/min: 2100
                                                              cm3/:0.4
                                                 Dispersion
TEST BENCH REQUIREMENTS
                                                              100H.: (0.8)
Calibrating-oil inlet temp. OC
                                                              1/min: 300.0
                                                 2nd speed
                                                 Contr.-rod trav. m: 8.8...9.0
                 : 38...42
                                                 Del.quantity cm3/: 1.5...2.1
100H.: (1.2...2.3)
Overflow valve
                                                              cm3/: 0.4
                  : 1 417 413 025
                                                 Dispersion
                                                              100H.: (0.7)
Inlet press., bar : 1.50
                                                 (B) Setting of injection pump with
                                                     externally-mounted governor
Overflow
 quantity min. 1/h: 100...120
                                                 SLEEVE TRAVELS
Calibrating nozzle-holder
                                                 1st speed 1/min: 300
 assembly : 0 681 343 009
                                                   Sleeve travel mm: 1.60...1.80
                                                 2nd speed 1/min: 500
                                                   Sleeve travel mm: 5.50...5.70
Opening
                                                 3rd speed 1/min: 900
pressure, bar : 172...175
                                                   Sleeve travel mm: 7.00...7.30
                                                 4th speed 1/min: 1050
Sleeve travel mm: 7.60...7.90
Test in i. tubing : 1 680 750 015
                                                 5th speed 1/min: 1100
                                                   Sleeve travel mm: 9.50...10.00
Outside diameter
x Wall thickness
                  : 6.00x1.50x600
                                                 SLEEVE POSITION
x Length mm
                                                 Control-lever position
                                                             Degree: 108
1/min: 600
(A) Injection pump setting values
    Insp. values in parentheses
                                                 Speed
                                                 Cont.-rod travelmm: 16.30...17.30
    Set constant delivery quant.
    per values ____
                                                 FULL-LOAD DELIV. AT FULL-LOAD STOP
START OF DELIVERY
Test pressure, bar: 25...27
                                                 1st version
                                                             1/min: 1050
                                                 Speed
D26
```

```
Del.quantity cm3/: 132.0...134.0
1000H.: (129.5...136.5)
Dispersion cm3/: 4.00
              1000H.: (8.00)
HIGHEST RATED SPEED
Setting roint:
            1/min : 600
Speed
Contr.-rod trav.mm: 16.8
Testing:
1st c-rod trav.mm : 11.90
            1/min : 1095...1110
  Speed
2nd c-rod trav.mm : 4.00
             1/min : 1160...1190
  Speed
             1/min : 1300
4th speed
  C-rod trav.mm : 0.00...1.50
LOWEST RATED SPEED I
Setting point w/out aux. spring
            1/min : 300
Speed
Contr.-rod trav.mm: 8.9
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 10.00
             1/min : 300
Speed
                  : 8.80...9.00
C-rod trav.mm
                    : 2.00
C-rod trav.mm
             1/min : 400...440
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1050
  C-rod trav.mm : 12.90...13.00
2nd speed 1/min : 600
C-rod trav.mm : 12.80...13.00
3rd speed 1/min : 750
  C-rod trav.mm : 13.20...13.40
FUEL-DELIVERY CHARACTERISTICS
             1/min : 600
Speed
Del.quantity cm3/: 119.0...122.0
1000H.: (116.0...125.0)
Dispersion cm3/: 8.00
1000H.: (11.0)
             1/min: 900
Speed
Del.quantity cm3/: 130.0...134.0
             1000H.: (127.0...137.0)
              cm3/:8.00
Dispersion
             1000H.: (-)
STARTING FUEL DELIVERY
Speed
             1/min : 100
Del.quantity cm3/: 140.0...160.0
             1000H.: (136.0...164.0)
```

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : MB 14,6 E 3 : 09.03.87

Calibrating oil : ISO-4113

: 0 401 848 787 Combination no.

Injection pump

Pump designation : PE8P110A320LS3802-10 EP type number : 0 411 818 710

Governor

Governor design. : RQ300/1150PA187-16 Governer no. : 0 421 801 385

Customer-spec. information Customer : DAIMLER-BENZ

Engine : 0M422

1st version kW : 191.0 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 8- 7- 2- 6- 3- 5-SD ang. spacing CS: 0-45-90-135-180-225-270-315 Tolerance + - 0 : 0.50 (0.75) SD mark cyl. no. : 8 BASIC SETTING 1st speed 1/mi: 1150 Contr.-rod trav.mm: 11.00...11.10 Del.quantity cm3/ : 11.9...12.1 100H.: (11.6...12.3) Dispersion cm3/:0.4100H.: (0.8) 1/min: 300.0 2nd speed Contr.-rod trav. m: 8.0...8.2

Del.quantity cm3/: 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/: 0.4 100H.: (0.7) SLEEVE POSITION Control-lever position Degree: -1 1/min: 650 Speed Cont.-rod travelmm: 13.00...14.00 FULL-LOAD DELIV. AT FULL-LOAD STOP 1st version 1/min: 1150 Speed Del.quantity cm3/: 119.0...121.0 1000H.: (116.5...123.5) Dispersion cm3/: 4.00 1000H.: (8.00) HIGHEST RATED SPEED Setting point: Speed 1/min: 650 Contr.-rod trav.mm: 13.5 Testing: 1st c-rod trav.mm : 10.00 Speed 1/min: 1195...1210 2nd c-rod trav.mm : 4.00

E01

Speed 1/min : 1240...1270 4th speed 1/min : 1350 C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring Speed 1/min: 300

Contr.-rod trav.mm: 8.1

Testing:

Speed 1/min : 100 C-rod trav.mm min : 10.20 1/min : 300 Speed

C-rod trav.mm : 8.00...8.20 C-rod trav.mm : 2.00 Speed 1/min : 420...460

Speed 1/min : 550 Speed C-rod trav.mm max: 1.80

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/: 93.0...97.0 1000H:: (90.0...100.0) Dispersion cm3/: 8.00 1000H:: (11.0)

STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 130.0...150.0 1000H.: (126.0...154.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS START OF DELIVERY Test pressure, bar: 25...27 Note inst. in remarks column : 4.00...4.10 Prestroke mm Test sheet : (3.95...4.15) : MB 14,6 W Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 8-7-2-6-3-5-: 09.03.87 Edition Superceeded Calibrating oil : ISO-4113 Combination no. : 0 401 848 788 SD ang. spacing CS: 0-45-90-135-180-225-Injection pump 270-315 Pump designation : PE8P120A320LS3816-11 Tolerance + - 0 : 0.50 (0.75) EP type number : 0 411 828 720 Governor Governor design. : RQV350...1150PA854 Governer no. : 0 421 813 602 SD mark cyl. no. : 8 BASIC SETTING Customer-spec. information : DAIMLER-BENZ 1/mi: 1150 Customer 1st speed Contr.-rod trav.mm: 11.00...11.10 Engine : 0M422A 1st version kW : 243.0 Del.quantity cm3/: 15.8...16.0 1/min: 2300 Speed 100H.: (15.5...16.3) TEST BENCH REQUIREMENTS Dispersion cm3/:0.5Calibrating-oil inlet temp. °C : 38...42 100H.: (0.9) Overflow valve 2nd speed 1/min: 350.0 Contr.-rod trav. m: 4.9...5.1 Del.quantity cm3/: 1.2...1.8 : 1 417 413 025 100H.: (0.9...2.1) Inlet press., bar : 1.50 cm3/:0.8Dispersion 100H.: (1.2) Overflow quantity min. 1/h: 100...120 SLEEVE POSITION Calibrating nozzle-holder Control-lever position assembly : 1 688 901 019 Degree: -1 17min: 1150 Speed Cont.-rod travelmm: 15.20...17.80 Opening pressure, bar : 207...210 FULL-LOAD DELIV. AT FULL-LOAD STOP Perforated-plate 1st version diameter mm : 0,8 Speed 1/min: 1150 Charge press. hPa: 700 Del.quantity cm3/: 158.0...160.0 Test inj. tubing : 1 680 750 067 1000H.: (155.0...163.0) cm3/ : 5.00 1000H.: (9.00) Outside diameter Dispersion x Wall thickness : 6.00x1.50x1000 x Length mm HIGHEST RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control-lever Set constant delivery quant. position degrees: 59...67 per values Testing: £03

1st c-rod trav.mm : 10.00 1/min: 1190...1200 Speed 2nd c-rod trav.mm : 4.00 Speed 1/min: 1270...1300 4th speed 1/min: 1400 C-rod trav.mm: 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 6...14 Testing: 1/min : 100 Speed C-rod trav.mm min : 6.00 1/min : 350 Speed : 4.90...5.10 C-rod trav.mm CONSTANT REGULATION 1/min : 370...480 Speed TORQUE CONTROL Torque-control curve - 1st version 1st speed 1/min : 1050 C-rod trav.mm : 11.00...11.10 2nd speed 1/min: 850 C-rod trav.mm : 11.20...11.40 3rd speed 1/min : 750 C-rod trav.mm : 11.30...11.50 compensator (LDA, ADA, ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : 700 Contr.-rod trav.mm: 11.50...11.70 Measurement 1/min : 500 Speed 1st pressure hPa : 10.50...10.60 C-rod trav.mm 2nd pressure hPa : 470 : 11.40...11.50 C-rod trav.mm 3rd pressure hPa : 400 C-rod trav.mm : 10.90...11.00 SWITCH-OVER POINT Speed 1/min : 270 (290) FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa: 700 1/min : 600 Speed Del.quantity cm3/: 166.0...172.0 1000H.: (163.0...175.0) Dispersion cm3/: 8.00

1000H.: (12.0)

STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 150.0...170.0 1000H.: (146.0...174.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : KHD 15,8 F : 09.03.87 Edition Superceeded : 3.85 Calibrating oil : ISO-4113 Combination no. : 0 401 849 703 Injection pump Pump designation : PE10P110A920/5L\$3073 : 0 411 819 701 EP type number Governor Governor design. : RQV300...1150PA549 : 0 421 813 277 Governer no. Customer-spec. information : KHD Customer : BF10L413F Engine 1st version kW : 265.0 1/min: 2050 Speed TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Calibrating nozzle-holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 Test inj. tubing : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_ START OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm : (2.75...2.95) Contr.-rod trav.mm: 9.00...12.00

: 1-10- 9- 4- 3- 6-5- 8- 7- 2 Cam sequence LOWEST RATED SPEED I Control-lever position degrees: 20...28 SD ang. spacing CS: 0-27-72-99-144-171-2 Testing: 16-243-288-315 1/min : 100 Speed Tolerance + - 0 : 0.50 (0.75) C-rod trav.mm min : 8.40 1/min : 300 Speed SD mark cyl. no. : 1 C-rod trav.mm : 6.90...7.10 BASIC SETTING CONSTANT REGULATION 1/min : 300...500 Speed 1st speed 1/mi: 700 TORQUE CONTROL Torque-control curve - 1st version 1st speed 1/min : 700 Contr.-rod trav.mm: 12.00...12.10 : 12.00...12.10 Del.quantity cm3/ : 14.4...14.6 C-rod trav.mm 1/min : 1150 2nd speed 100H.: (14.1...14.9) C-rod trav.mm : 10.70...10.90 1/min : 1050 3rd speed C-rod trav.mm : 11.10...11.20 Dispersion cm3/:0.44th speed 1/min: 1025 C-rod trav.mm : 11.20...11.40 100H.: (0.7) 2nd speed 1/min: 300.0 Contr.-rod trav. m: 6.9...7.1 Del.quantity cm3/: 1.8...2.4 compensator (LDA,ADA,ALDA) 100H.: (-) 1st version cm3/:0.4Setting Dispersion 100H.: (0.7) 1/min : 500 Speed hPa : 900 Pressure Contr.-rod trav.mm: 12.00...12.10 SLEEVE POSITION Control-lever position Degree: -1 Measurement 17min: 1220 1/min : 500 Speed Speed Cont.-rod travelmm: 15.20...17.80 1st pressure hPa : : 10.00...10.20 FULL-LOAD DELIV. AT FULL-LOAD STOP C-rod trav.mm 2nd pressure hPa : 500 C-rod trav.mm : 11.50...11.60 1st version 3rd pressure hPa : 350 1/min: 700 Speed Charge press. hPa : 900 Del.quantity cm3/ : 144.0...146.0 1000H.: (141.0...149.0) C-rod trav.mm : 10.40...10.60 SWITCH-OVER POINT cm3/ : 4.00 1/min : 220 (240) Dispersion Speed 1000H.: (7.50) FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : -HIGHEST RATED SPEED 1/min : 500 1st version Speed Del.quantity cm3/: 98.0...102.0 1000H:: (95.0...105.0) Control-lever position degrees: 60...68 Testing: 1st c-rod trav.mm : 11.00 STARTING FUEL DELIVERY 1/min: 1190...1200 Speed 2nd c-rod trav.mm : 4.00 1/min : 1270...1300 Speed Speed 1/min : 100 Del.quantity cm3/: 130.0...160.0 1000H.: (-) 1/min : 1400 4th speed C-rod trav.mm : 0.00...1.00 E06

Remarks: On activation of the starting solenoid, the start position must be reached. APPLICATION Maxidyne

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note inst. in remarks column Contr.-rod trav.mm: 9.00...12.00 : 10- 9- 4- 1- 8-- 6- 3- 5- 2 7 Cam sequence Test sheet : MB 18,3 D 1 Edition : 13.05.87 Superceeded : 28.10.86 Calibrating o: L : ISO-4113 SD ang. spacing CS: 0-45-72-117-144-189-216-261-288-333 : 0 401 849 709 Combination no. Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE10P110A320LS3818-1 SD mark cyl. no. : 10 EP type number : 0 411 819 703 BASIC SETTING Governor Governor design. : RQV350...1150PA678 1st speed 1/mi: 1150 Governer no. : 0 421 813 402 Contr.-rod trav.mm: 12.20...12.30 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.6...12.8 Engine : OM 423 100H.: (12.3...13.0) 1st version kW : 261.0 cm3/:0.4Speed 1/min: 2300 Dispersion TEST BENCH REQUIREMENTS 100H.: (0.8) 2nd speed 1/min: 350.0 Contr.-rod trav. m: 8.5...8.7 Calibrating-oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...2.2 100H.: (1.1...2.4) cm3/: 0.4 Overflow valve : 1 417 413 025 Dispersion 100H.: (0.7) Inlet press., bar: 1.50 SLEEVE POSITION Speed 1/min: 1200 Cont.-rod travelmm: 15.20...17.80 Overflow quantity min. 1/h: 130...150 FULL-LOAD DELIV. AT FULL-LOAD STOP Calibrating nozzle-holder : 0 681 343 009 assembly 1st version 1/min: 1150 Opening Speed pressure, bar : 172...175 Del.quantity cm3/: 126.0...128.0 1000H.: (123.5...130.5) cm3/: 4.00 1000H.: (8.00) Dispersion Test inj. tubing : 1 680 750 015 HIGHEST RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00x1.50x600 Control-lever position degrees: 60...68 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. Testing: 1st c-rod trav.mm : 11.20 Speed 1/min : 1190...1200 per values \_\_\_\_ 2nd c-rod trav.mm : 4.00 1/min : 1240...1270 START OF DELIVERY Speed 1/min : 1400 Test pressure, bar: 25...27 4th speed C-rod trav.mm : 0.00...1.00 **E08** 

```
LOWEST RATED SPEED I
Control-lever
 position degrees: 10...18
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 10.20
Speed
            1/min : 350
                   : 8.50...8.70
C-rod trav.mm
CONSTANT REGULATION
             1/min: 350...500
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed
           1/min : 1150
  C-rod trav.mm
                   : 12.20...12.30
2nd speed 1/min: 600
                 : 12.80...13.00
  C-rod trav.mm
3rd speed 1/min: 900
  C-rod trav.mm : 12.60...12.80
SWITCH-OVER POINT
            1/min : 270 (290)
Speed
FUEL-DELIVERY CHARACTERISTICS
             1/min : 600
Speed
Del.quantity cm3/: 116.0...120.0
             1000H.: (113.0...123.0)
             cm3/:6.00
Dispersion
             1000H.: (9.00)
             1/min : 900
Speed
Del.quantity cm3/: 122.0...127.0
1000H.: (119.0...130.0)
              cm3/:6.00
Dispersion
             1000H.: (9.00)
             1/min : 1150
Speed
Del.quantity cm3/: 92.0...94.0 *
             1000H.: (89.0...97.0)
             cm3/: 6.00
1000H.: (9.00)
Dispersion
STARTING FUEL DELIVERY
            1/min : 100
Speed
Del.quantity cm3/: 150.0...170.0
1000H.: (146.0...174.0)
Remarks:

≠ = Set at reduced delivery stop.
```

```
: 1-10- 9- 4- 3- 6-
5- 8- 7- 2
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    Cam sequence
Note inst. in remarks column
Test sheet
                   : KHD 15,8 Q
                   : 13.05.87
                                                    SD ang. spacing CS: 0-27-72-99-144-171-
Edition
Superceeded
                                                                          216-243-288-315
                                                    Tolerance + - 0
Calibrating oil : ISO-4113
                                                                        : 0.50 (0.75)
Combination no. : 0 401 849 728
                                                    SD mark cyl. no. : 1
                                                    BASIC SETTING
Injection pump
Pump designation : PE10P110A920/5LS3138
EP type number
                 : 0 411 819 707
                                                    1st speed
                                                               1/mi: 900
Governor
Governor design. : RQV425....900PA814
                                                    Contr.-rod trav.mm: 10.40...10.50
Governer no.
                   : 0 421 813 558
                                                    Del.quantity cm3/ : 9.4...9.6
Customer-spec. information
                                                                  100H.: (9.1...9.9)
Customer
                  : KHD
                   : F10L513 OPT.
                                                    Dispersion
                                                                  cm3/:0.4
Engine
1st version kW : 188.0
                                                                  100H.: (0.7)
             1/min: 1800
Speed
                                                    2nd speed
                                                                  1/min: 425.0
                                                    Contr.-rod trav. m: 5.9...6.1
TEST BENCH REQUIREMENTS
                                                    Del.quantity cm3/: 1.2...1.8
100H:: (0.9...2.0)
Dispersion cm3/: 0.4
100H:: (0.7)
Calibrating-oil inlet temp. °C
                   : 38...42
Overflow valve
                   : 1 417 413 025
                                                     (B) Setting of injection pump with
                                                         externally-mounted governor
Inlet press., bar : 1.50
                                                    SLEEVE TRAVELS
                                                    1st speed 1/min: 425
Sleeve travel mm: 1.50...1.60
Calibrating nozzle-holder
              : 0 681 343 009
 assembly
                                                    2nd speed 1/min: 460
Sleeve travel mm: 2.70...3.10
Opening
pressure, bar : 172...175
                                                    3rd speed 1/min: 500
                                                      Sleeve travel mm: 3.20...3.50
                                                    4th speed 1/min: 950
Test inj. tubing : 1 680 750 015
                                                      Sleeve travel mm: 8.40...8.60
                                                    5th speed 1/min: 1010
Sleeve travel mm: 9.50...9.70
Outside diameter
x Wall thickness
                                                    SLEEVE POSITION
                 : 6.00x1.50x600
x Length mm
                                                    Control-lever position
                                                                 Degree: -1
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    Speed
                                                                  17min: 950
                                                    Cont.-rod travelmm: 15.20...17.80
    per values ____
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
START OF DELIVERY
Test pressure, bar: 25...27
                                                    1st version
                                                                  1/min: 900
                                                    Speed
                                                    Del.quantity cm3/: 94.0...96.0
Prestroke mm
                   : 3.10...3.20
                                                                 1000H.: (91.0...99.0)
                   : (3.05...3.25)
Contr.-rod trav.mm: 9.00...12.00
E10
```

```
Dispersion cm3/ : 4.00
            1000H.: (7.50)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 50...58
Testing:
1st c-rod trav.mm : 9.40
           1/min : 940...950
  Speed
2nd c-rod trav.mm : 4.00
            1/min : 980...1010
  Speed
4th speed 1/min: 1150
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 14...22
Testing:
            1/min : 100
Speed
C-rod trav.mm min: 7.40
      1/min : 425
trav.mm : 5.90...6.10
Speed
C-rod trav.mm
CONSTANT REGULATION
            1/min : 435...490
Speed
TORQUE CONTROL
Dimension a mm : 0.30
Torque-control curve - 1st version
1st speed 1/min: 900
  C-rod trav.mm : 10.40...10.50
2nd speed 1/min: 550
  C-rod trav.mm : 10.70...10.80
3rd speed 1/min: 675
 C-rod trav.mm : 10.70...10.80
4th speed 1/min : 750
  C-rod trav.mm : 10.60...10.70
SWITCH-OVER POINT
            1/min : 340 (360)
Speed
FUEL-DELIVERY CHARACTERISTICS
Speed
            1/min : 675
Del.quantity cm3/: 96.0...100.0
1000H.: (94.0...102.0)
STARTING FUEL DELIVERY
Speed
            1/min : 100
Del.quantity cm3/: 135.0...165.0
1000H.: (131.0...169.0)
On activation of the starting solenoid,
the start position must be reached.
```

**APPLICATION** 

Compressor

: 1-10- 9- 4- 3- 6-5- 8- 7- 2 BOSCH INJ. PUMP TEST SPECIFICATIONS Cam sequence Note inst. in remarks column Test sheet : KHD 15.8 0 : 09.03.87 SD ang. spacing CS: 0-27-72-99-144-171-2 Edition Superceeded : 12.9.86 16-243-288-315 Tolerance + - 0 Calibrating oil : ISO-4113 : 0.50 (0.75) : 0 401 849 729 Combination no. SD mark cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE10P110A920/5L83073 EP type number : 0 411 819 701 1st speed 1/mi: 1150 Governor Contr.-rod trav.mm: 10.80...10.90 Governor design. : RQV300...1150PA816 Governer no. : 0 421 813 559 Del.quantity cm3/: 12.4...12.6 Customer-spec. information 100H.: (12.1...12.9) Customer : KHD Engine : BF10L413F Dispersion cm3/:0.41st version kW : 252.0 100H.: (0.7) 1/min: 2300 Speed 2nd speed 1/min: 300.0 Contr.-rod trav. m: 6.7...6.9
Del.quantity cm3/: 1.4...1.9
Dispersion cm3/: 0.4
100H.: (0.7) TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve (B) Setting of injection pump with : 1 417 413 025 externally-mounted governor Inlet press., bar: 1.50 SLEEVE TRAVELS 1st speed 1/min: 300 Sleeve travel mm: 1.30...1.40
2nd speed 1/min: 390
Sleeve travel mm: 2.40...2.80 Calibrating nozzle-holder : 0 681 343 009 assembly 1/min: 450 Opening 3rd speed pressure, bar : 172...175 Sleeve travel mm: 2.80...3.20 4th speed 1/min: 1180 Sleeve travel mm: 8.30...8.40 : 1 680 750 015 5th speed 1/min: 1260 Test inj. tubing Sleeve travel mm: 9.10...9.30 Outside diameter SLEEVE POSITION x Wall thickness : 6.00x1.50x600 Control-lever position x Length mm Degree: -1 1/min: 1190 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. Cont.-rod travelmm: 15.20...17.80 FULL-LOAD DELIV. AT FULL-LOAD STOP per values \_\_\_\_ START OF DELIVERY 1st version Speed 1/min: 1150 Charge press. hPa: 700 Test pressure, bar: 25...27 Del.quantity cm3/: 124.0...126.0 : 2.80...2.90 Prestroke mm : (2.75...2.95) 1000H.: (121.0...129.0) Contr.-rod trav.mm: 9.00...12.00 E12

Dispersion cm3/ : 4.00 1000H.: (7.50) HIGHEST RATED SPEED 1st version Control-lever position degrees: 59...67 Testing: 1st c-rod trav.mm : 9.80 Speed 1/min: 1180...1190 2nd c-rod trav.mm : 4.00 1/min : 1265...1295 1/min : 1400 Speed 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 15...23 Testing: 1/min : 100 Speed C-rod trav.mm min : 8.20 Speed 1/min : 300 C-rod trav.mm : 6.70...6.90 CONSTANT REGULATION 1/min : 320...480 Speed compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : 700 Contr.-rod trav.mm: 10.80...10.90 Measurement 1/min : 500 Speed 1st pressure hPa : 9.90...10.00 C-rod trav.mm : 355 2nd pressure hPa : 10.60...10.70 C-rod trav.mm : 310 3rd pressure hPa C-rod trav.mm : 10.10...10.30 SWITCH-OVER POINT 1/min : 220 (240) Speed FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 700 1/min : 800 Speed Del.quantity cm3/: 119.0...123.0 1000H.: (116.0...126.0) Charge press. hPa : -1/min : 500 Speed

E13

Del.quantity cm3/: 98.0...102.0

1000H.: (96.0...104.0)

STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 130.0...160.0

On activation of the starting solenoid, the start position must be reached.

APPLICATION Excavator

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     START OF DELIVERY
Note inst. in remarks column
                                                     Test pressure, bar: 25...27
Test sheet
Edition
Superceeded
                  : MB 18.3 E 4
: 16.06.87
                                                                         : 4.00...4.10
                                                     Prestroke mm
                                                                         : (3.95...4.15)
                                                     Contr.-rod trav.mm: 9.00...12.00
                  : 5.11.86
                                                                                              7
Calibrating oil : ISO-4113
                                                     Cam sequence
                                                                        : 10- 9- 4- 1-
                                                                           - 6- 3- 5-
Combination no.
                   : 0 401 849 733
Injection pump
Pump designation : PE10P120A320LS3824-
                                                     SD ang. spacing CS: 0-45-72-117-144-189-
                                                                           216-261-288-333
                     10
                                                     Tolerance + - 0
EP type number
                   : 0 411 829 701
                                                                         : 0.50 (0.75)
Governor
Governor design. : RQ300/1150PA546-9
                                                     SD mark cyl. no. : 10
Governer no.
                   : 0 421 801 371
                                                     BASIC SETTING
Customer-spec. information
                                                     1st speed 1/mi: 1150
Customer
                   : DAIMLER-BENZ
                                                     Contr.-rod trav.mm: 11.00...11.10
Engine
                   : OM 423 LA
1st version kW : 301.0
                                                     Del.quantity cm3/: 15.2...15.4
Speed
              1/min: 2300
                                                                   100H.: (14.9...15.7)
TEST BENCH REQUIREMENTS
                                                                   cm3/:0.5
                                                     Dispersion
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                   100H.: (0.8)
Overflow valve
                                                                   1/min: 300.0
                                                     2nd speed
                                                     Contr.-rod trav. m: 5.0...5.2
                   : 1 417 413 025
                                                     Del.quantity cm3/: 1.6...2.2
                                                                   100H:: (1.3...2.5)
cm3/: 0.8
100H:: (1.2)
Inlet press., bar : 1.50
                                                     Dispersion
Overflow
 quantity min. 1/h: 130...150
                                                     (B) Setting of injection pump with
Calibrating nozzle-holder
                                                         externally-mounted governor
                  : 1 688 901 019
 assembly
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 100
Opening
                                                     Sleeve travel mm: 0.00...0.50
2nd speed 1/min: 300
2leeve travel mm: 2.60...2.70
                   : 207...210
 pressure, bar
Perforated-plate
                                                     3rd speed 1/min: 600
Sleeve travel mm: 5.90...6.00
                   : 0,8
 diameter mm
                                                     4th speed 1/min: 1150
                                                       Sleeve travel mm: 5.90...6.00
Test inj. tubing : 1 680 750 067
Outside diameter
                                                     SLEEVE POSITION
x Wall thickness
                                                     Control-lever position
                   : 6.00x1.50x1000
x Length mm
                                                                  Degree: -2
                                                                   17min: 600
                                                     Speed
                                                     Cont.-rod traveimm: 19.20...20.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
E14
```

```
1st version
               1/min: 1150
Speed
Charge press. hPa : 700
Del.quantity cm3/: 152.0...154.0
1000H.: (149.0...157.0)
Dispersion cm3/: 5.00
1000H.: (8.00)
HIGHEST RATED SPEED
Setting point:
         1/min : 600
Speed
Contr.~rod trav.mm: 20.0
Testing:
1st c-rod trav.mm : 10.10
           1/min : 1195...1210
  Speed
2nd c-rod trav.mm : 4.00
            1/min : 1250...1280
  Speed
4th speed 1/min : 1350
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
Control-lever
 position degrees: 6...14
Testing:
Speed
             1/min : 100
C-rod trav.mm min : 6.50
             1/min : 300
Speed
             nm : 5.00...5.20
nm : 2.00
1/min : 360...400
C-rod trav.mm
C-rod trav.mm
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min: 1150
C-rod trav.mm: 11.00...11.10
2nd speed 1/min: 750
  C-rod trav.mm : 11.60...11.80
 compensator (LDA, ADA, ALDA)
1st version
Setting
             1/min : 500
Speed
Pressure
             hPa
Contr.-rod trav.mm: 10.40...10.60
Measurement
             1/min : 500
Speed
1st pressure hPa : 360
  C-rod trav.mm : 10.50...10.60
2nd pressure hPa : 420
  C-rod trav.mm : 10.90...11.10
SWITCH-OVER POINT
Speed
             1/min : 220 (240)
```

E15

STARTING FUEL DELIVERY

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : MB 18,3 E 5 : 30.03.87

Calibrating oil : ISO-4113

Combination no. : 0 401 849 736

Injection pump

Pump designation : PE10P120A320LS3824-1

EP type number : 0 411 829 701

Governor

Governor design. : RQ300/1050PA859 Governer no. : 0 421 801 394

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 423 LA Engine

1st version kW : 368.0 Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 130...150

Calibrating nozzle-holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Perforated-plate

diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY Test pressure, bar: 25...27 1st version 1/min: 1150 Speed Charge press. hPa: 700 : 4.00...4.10 Prestroke mm : (3.95...4.15) Del.quantity cm3/: 183.0...185.0 1000H.: (180.0...188.0) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 10- 9- 4- 1- 8- 7 - 6- 3- 5- 2 Dispersion cm3/ : 5.00 1000H.: (8.00) HIGHEST RATED SPEED SD ang. spacing CS: 0-45-72-117-144-189-Setting point: 216-261-288-333 Speed 1/min : 600 Tolerance  $+ - \circ$  : 0.50 (0.75) Contr.-red trav.mm: 20.0 SD mark cyl. no. : 10 Testing: 1st c-rod trav.mm : 10.70 Speed 1/min: 1195...1210 BASIC SETTING 2nd c-rod trav.mm: 4.00 1/min : 1245...1275 1/min : 1350 1st speed 1/mi: 1150 Speed 4th speed Contr.-rod trav.mm: 11.70...11.80 C-rod trav.mm : 0.00...1.00 Del.quantity cm3/: 18.3...18.5 LOWEST RATED SPEED I Setting point w/out aux. spring Speed 1/min: 300 Contr.-rod trav.mm: 5.1 100H.: (18.0...18.8) cm3/:0.5Dispersion Testing: 100Ha: (0.8) 1/min : 100 Speed C-rod trav.mm min : 6.50 Speed 1/min : 300 2nd speed 1/min: 300.0 Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/: 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/: 0.8 C-rod trav.mm : 5.00...5.20 C-rod trav.mm : 2.00 Speed 1/min: 360...400 100H.: (1.2) compensator (LDA, ADA, ALDA) (B) Setting of injection pump with externally-mounted governor 1st version Setting Speed 1/min: 500 Pressure hPa: 700 SLEEVE TRAVELS 1st speed 1/min: 100 Sleeve travel mm: 0.10...0.50 Contr.-rod trav.mm: 11.70...11.80 2nd speed 1/min: 300 Sleeve travel mm: 2.50...2.80 Measurement 1/min : 500 3rd speed 1/min: 600 Speed Sleeve travel mm: 5.90...6.00 4th speed 1/min: 1200 1st pressure hPa : -Sleeve travel mm: 6.20...6.60 C-rod trav.mm : 10.00...10.20 2nd pressure hPa : 390 C-rod trav.mm : 10.40...10.60 3rd pressure hPa : 520 5th speed 1/min: 1270 Sleeve travel mm: 8.80...9.20 C-rod trav.mm : 11.40...11.50 SLEEVE POSITION Control-lever position Degree: 108 SWITCH-OVER POINT 17min: 600 Speed 1/min: 220 (240) Speed Cont.-rod travelmm: 19.20...20.80 FUEL-DELIVERY CHARACTERISTICS FULL-LOAD DELIV. AT FULL-LOAD STOP

£17

Del.quantity cm3/: 150.0...170.0 1000H.: (146.0...174.0)

Remarks:

£18

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : STE 10,0 D2 : 09.03.87 : 10.83 Calibrating oil : ISO-4113

: 0 401 856 155 Combination no.

Injection pump

Pump designation : PE6P110A321RS157-1

EP type number : 0 411 816 157

Governor

Governor design. : RQ250...1100PA692

Governer no. : 0 421 801 240

Customer-spec. information Customer : STEYR

: 9 FU-A Engine

1st version kW : 184.0 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

: 2,00...2.10 Prestroke mm

: (1.95...2.15)

Contr.-rod trav.mm: 9.00...12.00

```
: 1-5-3-6-2-4
                                                      Setting point w/out aux, spring
Cam sequence
                                                      Speed
                                                                  1/min : 250
                                                      Contr.-rod trav.mm: 6.0
SD ang. spacing ^{0}CS: 0-60-120-180-240-300
Tolerance + - ^{0}: 0.50 (0.75)
                                                      Testing:
                                                      Speed 1/min: 100
C-rod trav.mm min: 7.40
Speed 1/min: 250
SD mark cyl. no. : 1
                                                      C-rod trav.mm : 5.90...6.10
                                                                   m : 2.00
1/min : 335...375
BASIC SETTING
                                                      C-rod trav.mm
                                                      Speed
1st speed
               1/mi: 1100
                                                      TORQUE CONTROL
Contr.-rod trav.mm: 10.20...10.30
                                                      Dimension a mm : 0.55
                                                      Torque-control curve - 1st version
                                                      1st speed 1/min : 1100
C-rod trav.mm : 10.20...10.30
Del.quantity cm3/ : 13.4...13.6
              100H.: (13.1...13.9)
                                                                   1/min : 900
                                                      2nd speed
                                                        C-rod trav.mm : 10.70...10.90
                                                      3rd speed 1/min: 700
Dispersion
              cm3/:0.4
                                                        C-rod trav.mm : 11.10...11.30
                                                      4th speed 1/min: 550
              100H.: (0.7)
                                                        C-rod trav.mm
                                                                          : 11.30...11.50
2nd speed 1/min: 250.0
Contr.-rod trav. m: 5.9...6.1
                                                       compensator (LDA, ADA, ALDA)
Del.quantity cm3/ : 1.7...2.2
              cm3/:0.4
Dispersion
              100H.: (0.7)
                                                      1st version
                                                      Setting
SLEEVE POSITION
                                                      Speed
                                                                   1/min : 500
                                                                   hPa : 700
Control-lever position
                                                      Pressure
             Degree: 101
1/min: 600
                                                      Contr.-rod trav.mm: 10.70...10.90
Speed
Cont.-rod travelmm: 15.20...20.80
                                                      Measurement
                                                                   1/min : 500
                                                      Speed
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                      1st pressure hPa : -
                                                                          : 9.50...9.60
1st version
                                                        C-rod trav.mm
Speed 1/min: 1100
Charge press. hPa: 700
                                                      2nd pressure hPa : 520
                                                      C-rod trav.mm : 10.50...10.60
3rd pressure hPa : 420
Del.quantity cm3/: 134.0...136.0
1000H.: (131.0...139.0)
Dispersion cm3/: 4.00
                                                        C-rod trav.mm
                                                                          : 9.80...10.00
                                                      SWITCH-OVER POINT
             1000H.: (7.50)
                                                                   1/min : 170 (190)
                                                      Speed
HIGHEST RATED SPEED
                                                      FUEL-DELIVERY CHARACTERISTICS
Setting point:
Speed
            1/min : 600
                                                      1st version
                                                      Charge press. hPa : 700
Contr. rod trav.mm: 20.0
                                                                   1/min : 550
                                                      Speed
                                                      Del.quantity cm3/: 138.0...142.0
Testing:
                                                                   1000H.: (135.0...145.0)
1st c-rod trav.mm : 9.20
            1/min : 1145...1160
                                                                   1/min : 500
                                                      Speed
  Speed
                                                      Del.quantity cm3/: 106.0...110.0
1000H.: (103.0...113.0)
2nd c-rod trav.mm : 4.00
             1/min : 1200...1230
1/min : 1350
  Speed
4th speed
  STARTING FUEL DELIVERY
LOWEST RATED SPEED I
```

E20

Speed 1/min : 100
Del.quantity cm3/ : 140.0...160.0

Remarks: APPLICATION Omnibus

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                         : 1-5-3-6-2-4
                                                      Cam sequence
Note inst. in remarks column
Test sheet
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                    : STE 10.0 D3
: 09.03.87
Superceeded
Calibrating oil : ISO-4113
                                                      SD mark cyl. no. : 1
Combination no.
                   : 0 401 856 157
                                                      BASIC SETTING
Injection pump
                                                                     1/mi: 1100
                                                      1st speed
Pump designation : PE6P110A321RS157-1
                    : 0 411 816 157
EP type number
                                                      Contr.-rod trav.mm: 11.10...11.20
Governor
Governor design.
                    : RQ250...1100PA692-1
                                                      Del.quantity cm3/: 14.5...14.7
Governer no.
                    : 0 421 801 393
                                                                    100H.: (14.2...15.0)
Customer-spec. information
                                                                    cm3/:0.4
Customer
                   : STEYR
                                                      Dispersion
Engine
                    : 9 FU-A
                                                                    100H.: (0.7)
1st version kW : 206.0
                                                                    1/min: 250.0
                                                      2nd speed
                                                      Contr.-rod trav. m: 6.2...6.4
Speed
              1/min: 2200
                                                      Del.quantity cm3/: 1.3...1.8
100H.: (-)
TEST BENCH REQUIREMENTS
                                                                    cm3/: 0.4
100H.: (0.7)
                                                      Dispersion
Calibrating-oil inlet temp. OC
                    : 38...42
                                                      SLEEVE POSITION
                                                      Control-lever position
Overflow valve
                                                                   Degree: 45...47
1/min: 600
                    : 1 417 413 025
                                                      Speed
Inlet press., bar : 1.50
                                                      Cont.-rod travelmm: 19.20...20.80
Calibrating nozzle-holder
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
                  : 0 681 343 009
 assembly
                                                      1st version
                                                     Speed 1/min: 1100
Charge press. hPa: 700
Del.quantity cm3/: 145.0...147.0
1000H.: (142.0...150.0)
Opening
pressure, bar : 172...175
                                                                   cm3/ : 4.00
Test inj. tubing : 1 680 750 015
                                                      Dispersion
                                                                   1000H.: (7.50)
Outside diameter
x Wall thickness
                                                     HIGHEST RATED SPEED
x Length mm
                  : 6.00x1.50x600
                                                      Setting point:
(A) Injection pump setting values
                                                                  1/min : 600
    Insp. values in parentheses
Set constant delivery quant.
                                                      Contr.-rod trav.mm: 20.0
    per values
                                                      Testing:
                                                      1st c-rod trav.mm : 10.10
                                                        Speed 1/min: 1145...1160
START OF DELIVERY
Test pressure, bar: 25...27
                                                      2nd c-rod trav.mm : 4.00
                                                                  1/min : 1205...1235
1/min : 1350
                                                        Speed
                    : 2.00...2.10
: (1.95...2.15)
Prestroke mm
                                                      4th speed
                                                        C-rod trav.mm : 0.00...1.00
Contr.-rod trav.mm: 9.00...12.00
E22
```

```
LOWEST RATED SPEED I
Setting point w/out aux. spring
            1/min : 250
Speed
Contr.-rod trav.mm: 6.3
Testing:
Speed 1/min: 100
C-rod trav.mm min: 7.70
Speed
Speed
            1/min : 250
                : 6.20...6.40
C-rod trav.mm
C-rod trav.mm
                 : 2.00
            1/min : 340...380
Specd
TORQUE CONTROL
Dimension a mm : 0.50
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 11.10...11.20
2nd speed 1/min : 500
  C-rod trav.mm : 12.20...12.30
3rd speed 1/min: 840
C-rod trav.mm : 11.30...11.50
4th speed 1/min : 720
  C-rod trav.mm : 12.00...12.20
 compensator (LDA,ADA,ALDA)
1st version
Setting
            1/min : 500
hPa : 700
Speed
Pressure
Contr.-rod trav.mm: 12.20...12.30
Measurement
            1/min : 500
Speed
1st pressure hPa : -
 C-rod trav.mm : 8.70...8.90
2nd pressure hPa : 380
 C-red trav.mm : 11.50...11.60
3rd pressure hPa : 135
  C-rod trav.mm : 9.80...10.00
SWITCH-OVER POINT
        1/min : 170 (190)
Speed
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa: 700
            1/min : 500
Speed
Del.quantity cm3/: 161.0...165.0
            1000H.: (158.0...168.0)
Charge press. hPa : -
            1/min : 500
Speed
Del.quantity cm3/: 84.0...88.0
1000H.: (81.0...91.0)
```

STARTING FUEL DELIVERY

Speed 1/min: 100

Del.quantity cm3/: 155.0...185.0

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11.0 R4
Edition : 26.6.87
Superceeded : 1.85
Calibrating oil : ISO-4113

Combination no. : 0 401 876 720

Injection pump

Pump designation : PE6P110A720RS3040

EP type number : 0 411 816 713

Governor

Governor design. : RSV350...1100P1/481

Governer no. : 0 421 833 121

Customer-spec. information : SCANIA Customer

: DS11 05 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly `

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40 : (3.25...3.45)

Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5-3-6-2-4

```
SD ang. spacing CS: 0-60-120-180-240-300
SD mark cyl. no. : 1
BASIC SETTING
             1/mi: 1100
1st speed
Contr.-rod trav.mm: 13.10...13.20
Del.quantity cm3/ : 15.6...15.8
             100H.: (15.4...16.0)
Dispersion
             cm3/:0.6
             100H.: (0,8)
SLEEVE POSITION
Control-lever position
            Degree: -1
Speed
             17min: 800
Cont.-rod travelmm: 0.30...1.00
Governor-spring reload
Notch setting x : 6.00
FULL-LOAD DELIV. AT FULL-LOAD STOP
1st version
             1/min: 1100
Speed
Del.quantity cm3/: 156.0...158.0
            1000H.: (154.0...160.0)
            cm3/ : 6.9
Dispersion
            1000H.: (8.0)
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 62...70
Testing:
1st c-rod trav.mm : 12.10
  Speed 1/min: 1140...1150
2nd c-rod trav.mm : 4.00
$peed 1/min : 1210...1240
4th speed 1/min : 1350
  C-rod trav.mm : 0.30...1.70
LOWEST RATED SPEED I
Control-lever
position degrees: 26...34
Setting point w/out aux. spring
Speed
           1/min : 350
Contr.-rod trav.mm: 4.00
           1/min : 350
Speed
C-rod trav.mm : 4.40...4.60
C-rod trav.mm : 2.00
Speed
          1/min : 440...500
£25
```

FUEL-DELIVERY CHARACTERISTICS
Speed 1/min: 700
Del.quantity cm3/: 156.5...161.5
1000H.: (154.0...164.0)
STARTING FUEL DELIVERY

Speed 1/min: 100
Del.quantity cm3/: 240.0...290.0
1000H.: (-)

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

ADDITIONAL INFORMATION

For sealing see VDT-I-400/117.

Test specifications approved by Scania on August 29, 1983 Start of delivery - engine: 20° before TDC Firing sequence of engine: 1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS SD ang. spacing  $^{0}$ CS: 0-60-120-180-240-300 Tolerance + -  $^{0}$ : 0.50 (0.75) Note inst. in remarks column Test sheet : SCA 11,0 Y1 SD mark cyl. no. : 1 : 21.05.87 Edition Superceeded : 7.85 BASIC SETTING Calibrating oil : ISO-4113 1/mi: 600 1st speed Combination no. : 0 401 876 728 Contr.-rod trav.mm: 12.40...12.50 Injection pump Del.quantity cm3/: 11.9...12.1 Pump designation : PE6P110A720RS3115 EP type number : 0 411 816 735 100H.: (11.7...12.3) Governor Governor design. : RSV350...1100P1/481 Governer no. : 0 421 833 121 cm3/:0.5Dispersion 100f.: (0.7) Customer-spec. information : SAAB-SCANIA Customer 2nd speed 1/min: 350.0 Contr.-rod trav. m: 5.1...5.3 Del.quantity cm3/: 2.0...2.4 100H.: (-) : DN11 01 Engine TEST BENCH REQUIREMENTS cm3/:0.2Dispersion Calibrating-oil inlet temp. °C 100H.: (0.4) : 38...42 SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 025 Degree: -3 1/min: 800 Cont.-rod travelmm: 0.30...1.00 Inlet press., bar : 1.50 Governor-spring reload Calibrating nozzle-holder : 0 681 343 009 assembly Notch setting x : 6.00 FULL-LOAD DELIV. AT FULL-LOAD STOP Opening pressure, bar : 172...175 1st version 1/min: 600 Speed Del.quantity cm3/: 119.0...121.0 1000H.: (117.0...123.0) Dispersion cm3/: 5.00 Test inj. tubing : 1 680 750 015 Outside diameter 1000H.: (7.00) x Wall thickness x Length mm : 6.00x1.50x600 HIGHEST RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set constant delivery quant. Control-lever position degrees: 62...70 per values Testing: 1st c-rod trav.mm : 11.40 START OF DELIVERY Speed 1/min: 1140...1150 Test pressure, bar: 25...27 2nd c-rod trav.mm : 4.00 Speed 1/min: 1210...1240 Prestroke mm : 3.30...3.40 4th speed 1/min: 1370 : (3.25...3.45) Contr.-rod trav.mm: 9.00...12.00 C-rod trav.mm : 0.30...1.70 Cam sequence : 1-5-3-6-2-4 LOWEST RATED SPEED I Control-lever **E26** 

```
position degrees: 27...35
Setting point w/out aux. spring
            1/min : 350
Speed
Contr.-rod trav.mm: 4.7
           1/min : 350
Speed
               : 4.60...4.80
: 2.00
C-rod trav.mm
C-rod trav.mm
           1/min : 470...530
Speed
FUEL-DELIVERY CHARACTERISTICS
            1/min : 1100
Speed
Del.quantity cm3/: 119.5...124.5
            1000H.: (117.0...127.0)
STARTING FUEL DELIVERY
            1/min : 100
Speed
Del.quantity cm3/: 240.0...290.0
            1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00
LOW IDLE
            1/min : 350
Speed
Contr.-rod trav.mm: 5.10...5.30
Del.quantity cm3/: 20.0 ... 24.0
Dispersion cm3/: 2.00
            1000H.: (4.00)
Remarks:
Delivary-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
ADDITIONAL INFORMATION
Check and set without ROBO diaphragam
For comb. With letter index see
VDT-I-400/116.
For sealing see VDT-I-400/117.
Scania test specifications taken over
on Aug. 22, 1983
Start of delivery - engine: 210 before
TDC
```

Firing sequence of engine: 1-5-3-6-2-4.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Cam sequence : 1-6-3-5-2-4
Note inst. in remarks column
Test sheet
                                                     SD ang. spacing CS: 0-75-120-195-240-315
Tolerance + - : 0.50 (0.75)
                    : MB 11,0 E 2
Edition
                    : 9.86
Superceeded
                   : 3.85
Calibrating oil : ISO-4113
                                                     SD mark cyl. no. : 6
Combination no.
                   : 0 401 876 733
                                                     BASIC SETTING
Injection pump
                                                                     1/mi: 1130
                                                     1st speed
Pump designation : PE6P120A320LS3810-10
                                                     Contr.-rod trav.mm: 10.60...10.70
Governor
Governor design.
                  : RSV350...1150P0A810
                                                     Del.quantity cm3/: 16.3...16.5
Customer-spec. information
                   : DAIMLER-BENZ
                                                                    100H.: (16.0...16.8)
Customer
Engine
                   : OM 421 A
                                                                   cm3/: 0.50
                                                     Dispersion
1st version kW : 184.0
                                                                    100H.: (0.75)
Speed
              1/min: 2300
                                                     2nd speed 1/min: 350
Contr.-rod trav. m: 4.70...4.90
TEST BENCH REQUIREMENTS
                                                     Del.quantity cm3/: 1.6...2.2
Calibrating-oil inlet temp. OC
                                                                    100H.: (-)
                                                                   cm3/: 0.8
100H.: (1.2)
                    : 38...42
                                                     Dispersion
Overflow valve
                    : 1 417 413 025
                                                     SLEEVE POSITION
                                                     Control-lever position
                                                                  Degree: -3
Inlet press., bar: 1.50
                                                                   17min: 800
Calibrating nozzle-holder
                                                     Cont.-rod travelmm: 0.30...1.00
 assembly
                  : 1 688 901 019
                                                     Governor-spring reload
Opening
                                                     Notch setting x : 4.75
 pressure, bar
                  : 207...210
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
Perforated-plate
                    : 0.8
 diameter mm
                                                     1st version
                                                                   1/min: 1130
                                                     Speed
                                                     Del.quantity cm3/: 163.0...165.0
                                                                  1000H:: (160.0...168.0)
cm3/: 5.0
1000H:: (9.0)
Test inj. tubing : 1 680 750 067
                                                     Dispersion
Outside diameter
x Wall thickness
                                                     HIGHEST RATED SPEED
                    : 6,00x1,50x1000
x Length mm
                                                     1st version
                                                     Control-lever
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      position degrees: 52...60
    per values
                                                     Testing:
                                                     1st c-rod trav.mm : 9.60
Speed 1/min : 1175...1185
2nd c-rod trav.mm : 4.00
START OF DELIVERY
                                                                1/min : 1250...1270
Prestroke mm
                    : 4.00...4.10
                    : (3.95...4.15)
                                                     3rd c-rod trav.mm : 0.30...1.40
Contr.-rod trav.mm: 9.00...12.00
                                                       Speed 1/min: 1350
```

£28

LOWEST RATED SPEED I Control-lever

position degrees: 32...40
Setting point w/out aux. spring
Speed 1/min: 350
Contr.-rod trav.mm: 4.80

Testing:

1/min : 100 Speed C-rod trav.mm min : 19.50 Speed 1/min : 350 C-rod trav.mm : 4.70...4.90 C-rod trav.mm : 2.00 Speed 1/min : 380...440

SET IDLE AUXILIARY SPRING Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Remarks:

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Prestroke mm
                                                                         : 4.00...4.10
                                                                         : (3.95...4.15)
Note inst. in remarks column
                                                     Contr.-rod trav.mm: 9.00...12.00
Test sheet
                                                                        : 6- 3- 5- 2- 4- 1
                   : MB 11,0 D 1
                                                     Cam sequence
Edition
                   : 12.09.86
Superceeded
                   : 12.85
Calibrating oil
                 : ISO-4113
                                                     SD ang. spacing CS: 0-45-120-165-240-285
Tolerance + - 0.50 (0.75)
Combination no.
                   : 0 401 876 739
Injection pump
                                                     SD mark cyl. no. : 6
Pump designation
                  : PE6P110A320L$3805-10
EP type number
                    : 0 411 816 740
                                                     BASIC SETTING
Governor
                    : RSV650...1150P1A820-
                                                                    1/mi: 1180
Governor design.
                                                     1st speed
Governer no.
                   : 0 421 833 177
                                                     Contr.-rod trav.mm: 12.50...12.60
                                                     Del.quantity cm3/: 13.7...13.9
Customer-spec. information
Customer
                   : DAIMLER-BENZ
                                                                   100H.: (13.4...14.1)
Engine
                    : 0M421
                                                                   cm3/:0.4
                                                     Dispersion
1st version kW : 159.0
Speed
              1/min: 2300
                                                                   100H.: (0.8)
TEST BENCH REQUIREMENTS
                                                     2nd speed
                                                                   1/min: 650.0
                                                     Contr.-rod trav. m: 6.0...6.2

Del.quantity cm3/: 1.6...2.2

100H.: (1.3...2.4)

Dispersion cm3/: 0.4
Calibrating-oil inlet temp. °C
                    : 38...42
                                                                   100H.: (0.7)
Overflow valve
                    : 1 417 413 025
                                                     SLEEVE POSITION
                                                     Control-lever position
Inlet press., bar : 1.50
                                                                  Degree: -3
1/min: 800
Over flow
                                                     Speed
                                                     Cont.-rod travelmm: 0.30...0.70
 quantity min. 1/h: 100...110
                                                     Governor-spring reload
Calibrating nozzle-holder
                  : 0 681 343 009
 assembly
                                                     Notch setting x : ?
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
Opening.
 pressure, bar
                  : 172...175
                                                     1st version
                                                                   1/min: 1180
                                                     Speed
                                                     Del.quantity cm3/: 137.0...139.0
1000H.: (134.5...141.5)
Dispersion cm3/: 4.00
                  : 1 680 750 015
Test inj. tubing
Outside diameter
                                                                  1000H.: (8.00)
x Wall thickness
                  : 6.00x1.50x600
x Length mm
                                                     HIGHEST RATED SPEED
(A) Injection pump setting values
                                                     1st version
    Insp. values in parentheses
                                                     Control-lever
    Set constant delivery quant.
                                                      position degrees: 53...61
    per values
                                                     Testing:
START OF DELIVERY
                                                     1st c-rod (ray.mm : 11.50
Test pressure, bar: 25...27
                                                       Speed 1/min: 1210...1220
F02
```

```
2nd c-rod trav.mm: 4.00
            1/min : 1240...1260
  Speed
4th speed 1/min : 1350
  C-rod trav.mm : 0.30...1.40
LOWEST RATED SPEED I
Control-lever
 position degrees: 26...34
Setting point w/out aux. spring
            1/min : 650
Contr.-rod trav.mm: 6.1
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 19.50
             1/min : 650
Speed
                 : 6.00...6.20
C-rod trav.mm
C-rod trav.mm
                   : 2.00
             1/min : 650...715
Speed
SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1180
  C-rod trav.mm : 12.40...12.50
2nd speed 1/min : 970
C-rod trav.mm : 12.90...13.10
3rd speed 1/min : 1100
C-rod trav.mm : 12.50...12.70
4th speed 1/min : 700
  C-rod trav.mm : 13.10...13.30
FUEL-DELIVERY CHARACTERISTICS
             1/min : 970
Speed
Del.quantity cm3/: 137.0...141.0
1000H.: (134.0...144.0)
Dispersion cm3/: 6.00
1000H.: (9.00)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      START OF DELIVERY
Note inst. in remarks column
                                                      Test pressure, bar: 25...27
                                                                          : 4.00...4.10
Test sheet
                    : MB 11,0 Q 4
                                                      Prestroke mm
                                                                          : (3.95...4.15)
Edition
                    : 12.09.86
                    : 3.85
Superceeded
                                                      Contr.-rod trav.mm: 9.00...12.00
                    : ISO-4113
                                                                          : 6- 3- 5- 2- 4- 1
Calibrating oil
                                                      Cam sequence
Combination no.
                    : 0 401 876 740
                                                      SD ang. spacing<sup>0</sup>CS: 0-45-120-165-240-285
Tolerance + - : 0.50 (0.75)
Injection pump
Pump designation
                    : PE6P120A320LS3815-10
EP type number
                    : 0 411 826 735
Governor
                                                      SD mark cyl. no. : 6
                    : RSV750...1150P1A820-
Governor design.
                                                      BASIC SETTING
                    : 0 421 833 179
Governer no.
                                                      1st speed 1/mi: 1180
Customer-spec. information
                                                      Contr.-rod trav.mm: 11.00...11.10
Customer
                    : DAIMLER-BENZ
Engine
                    : 0M421A
                                                      Del.quantity cm3/: 16.3...16.5
1st version kW : 184.0
                                                                     100H.: (16.0...16.8)
Speed
              1/min: 2300
                                                      Dispersion
                                                                    cm3/:0.5
TEST BENCH REQUIREMENTS
                                                                     100H.: (0.9)
Calibrating-oil inlet temp. °C
                                                      2nd speed 1/min: 750.0
Contri-rod trav. m: 3.3...3.5
Del.quantity cm3/: 1.8...2.4
                    : 38...42
Overflow valve
                    : 1 417 413 025
                                                                     100H.: (1.5...2.7)
                                                                    cm3/:0.8
                                                      Dispersion
                                                                     100H.: (1.2)
Inlet press., bar : 1.50
                                                      SLEEVE POSITION
Over flow
                                                      Control-lever position
 quantity min. 1/h: 100...120
                                                                   Degree: -3
1/min: 800
Calibrating nozzle-holder
                                                      Speed
                 : 1 688 901 019
                                                      Cont.-rod travelmm: 0.30...0.70
 assembly
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
Opening
                    : 207...210
 pressure, bar
                                                      1st version
                                                                    1/min: 1180
Perforated-plate
                                                      Speed
                                                      Del.quantity cm3/: 163.0...165.0
1000H.: (160.0...168.0)
Dispersion cm3/: 5.00
1000H.: (9.00)
                    : 0,8
 diameter mm
                   : 1 680 750 067
Test inj. tubing
                                                      HIGHEST RATED SPEED
Outside diameter
x Wall thickness
                                                      1st version
                                                      Control-lever
x Length mm
                    : 6.00x1.50x1000
                                                       position degrees: 56...64
(A) Injection pump setting values
                                                      Testing:
    Insp. values in parentheses
    Set constant delivery quant.
                                                      1st c-rod trav.mm : 10.00
    per values ____
                                                        Speed
                                                                   1/min : 1210...1220
F04
```

```
2nd c-rod trav.mm: 4.00
 Speed 1/min: 1235...1255
4th speed 1/min: 1350
  C-rod trav.mm : 0.30...1.40
LOWEST RATED SPEED I
Control-lever
 position degrees: 32...40
Setting point w/out aux. spring
Speed
            1/min : 750
Contr.-rod trav.mm: 3.4
             1/min : 750
Speed
                 : 3.30...3.50
C-rod trav.mm
             nm : 2.00
1/min : 755...815
C-rod trav.mm
Speed
SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1180
C-rod trav.mm : 11.00...11.10
2nd speed 1/min : 975
  C-rod trav.mm : 11.60...11.80
3rd speed 1/min: 600
  C-rod trav.mm : 11.80...12.00
FUEL-DELIVERY CHARACTERISTICS
             1/min : 975
Speed
Del.quantity cm3/: 174.0...180.0
1000H.: (171.0...183.0)
Dispersion cm3/: 8.0
1000H.: (12.0)
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                           : 4.00...4.10
                                                      Prestroke mm
                                                                           : (3.95...4.15)
Note inst. in remarks column
                                                       Contr.-rod trav.mm: 9.00...12.00
                                                                          : 8- 7- 2- 6- 3- 5-
                                                       Cam sequence
Test sheet
                    : MB 14,6 T 1 : 12.09.86
Edition
Superceeded
Calibrating oil : ISO-4113
                                                       SD ang. spacing CS: 0-45-90-135-180-225-
                   : 0 401 878 706
                                                                             270-315
Combination no.
                                                       Tolerance + - 0: 0.50 (0.75)
Injection pump
Pump designation : PE8P110A320L$3813-10 EP type number : 0 411 818 712
                                                       SD mark cyl. no. : 8
                                                       BASIC SETTING
Governor
Governor design. : RSV350...750P0A824-2
Governer no. : 0 421 833 228
                                                       1st speed
                                                                      1/mi: 700
                                                       Contr.-rod trav.mm: 13.90...14.00
Customer-spec. information
                   : DAIMLER-BENZ
Customer
                                                       Del.quantity cm3/: 14.2...14.4
Engine
                   : 0M422
                                                                     100H.: (13.9...14.6)
1st version kW : 173.0
              1/min: 1500
                                                                     cm3/:0.4
Speed
                                                       Dispersion
TEST BENCH REQUIREMENTS
                                                                     100H.: (0.8)
                                                      2nd speed 1/min: 350.0
Contr.-rod trav. m: 7.7...7.9
Calibrating-oil inlet temp. C
                   : 38...42
                                                      Del.quantity cm3/: 1.4...1.8
100H:: (1.1...2.0)
Dispersion cm3/: 0.4
100H:: (0.7)
Overflow valve
                    : 1 417 413 025
Inlet press., bar : 1.50
                                                       SLEEVE POSITION
Over flow
                                                       Control-lever position
                                                                    Degree: -3
 quantity min. 1/h: 100...120
                                                                    17min: 800
                                                       Cont.-rod travelmm: 0.30...1.40
Calibrating nozzle-holder
             : 0 681 343 009
 assembly
                                                       Governor-spring reload
                                                       Notch setting x :?
Opening
pressure, bar : 172...175
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
Test inj. tubing : 1 680 750 015
                                                       1st version
                                                       Speed
                                                                     1/min: 700
                                                      Del.quantity cm3/: 142.0...144.0
1000H.: (139.5...146.5)
Dispersion cm3/: 4.00
1000H.: (8.00)
Outside diameter
x Wall thickness
              : 6.00x1.50x600
x Length mm
(A) Injection pump setting values
                                                      HIGHEST RATED SPEED
    Insp. values in parentheses
    Set constant delivery quant.
                                                       1st version
    per values
                                                      Control-lever
                                                       position degrees: 24...28
START OF DELIVERY
Test pressure, bar: 25...27
                                                      Testing:
                                                       1st c-rod trav.mm : 12.90
F06
```

```
1/min: 750...755
  Speed
2nd c-rod trav.mm : 4.00
Speed 1/min : 780...793
LOWEST RATED SPEED I
Control-lever
 position degrees: 12...20
Setting point w/out aux. spring
              1/min : 350
Contr.-rod trav.mm: 7.1
Testing:
Speed 1/min: 100
C-rod trav.mm min: 19.50
Speed 1/min: 350
C-rod trav.mm : 7.00...7.20
SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 2.00
STARTING FUEL DELIVERY
Speed
               1/min : 100
Del.quantity cm3/: 140.0...160.0
1000H.: (136.0...164.0)
Remarks:
Observe VDT-I-420/120
0
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    START OF DELIVERY
                                                    Test pressure, bar: 25...27
Note inst. in remarks column
                                                                       : 4.00...4.10
                                                    Prestroke mm
                                                                       : (3.95...4.15)
                   : MB 14,6 P 3
Test sheet
                                                    Contr.-rod trav.mm: 9.00...12.00
Edition
                   : 12.09.86
                                                                       : 8- 7- 2- 6- 3- 5-
Superceeded
                                                    Cam sequence
                   : ISO-4113
                                                                         4- 1
Calibrating oil
Combination no.
                   : 0 401 878 707
                                                    SD ang. spacing<sup>0</sup>CS: 0-45-90-135-180-225-
Injection pump
Pump designation
                   : PE8P120A320LS3816-10
                                                                         270-315
                                                    Tolerance + - 0
EP type number
                   : 0 411 828 715
                                                                       : 0.50 (0.75)
Governor
Governor design.
                   : RSV350...0750POA824-
                                                    SD mark cyl. no. : 8
                   : 0 421 833 229
Governer no.
                                                    BASIC SETTING
Customer-spec. information
                                                                   1/mi: 700
                                                    1st speed
Customer
                   : DAIMLER-BENZ
                                                    Contr.-rod trav.mm: 12.10...12.20
                   : 0M422A
Engine
                                                    Del.quantity cm3/: 18.4...18.6
1st version kW
                   : 227.0
                                                                  100H.: (18.1...18.9)
TEST BENCH REQUIREMENTS
                                                    Dispersion
                                                                  cm3/:0.5
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                  100H.: (0.9)
Overflow valve
                                                                  1/min: 350.0
                                                    2nd speed
                                                    Contr.-rod trav. m: 4.8...5.0
                   : 1 417 413 025
                                                    Del.quantity cm3/: 1.6...2.2
                                                                  100H.: (1.3...2.5)
cm3/: 0.8
100H.: (1.2)
Inlet press., bar : 1.50
                                                    Dispersion
Overflow
 quantity min. 1/h: 100...120
                                                    SLEEVE POSITION
Calibrating nozzle-holder
                                                    Control-lever position
                                                                 Degree: -3
             : 1 688 901 019
 assembly
                                                                  17min: 800
                                                    Speed
                                                    Cont.-rod travelmm: 0.30...0.70
Opening
                   : 207...210
 pressure, bar
                                                    Governor-spring reload
Perforated-plate
                                                    Notch setting x : 2.50
diameter mm
                   : 0,8
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
Test inj. tubing : 1 680 750 067
                                                    1st version
                                                                  1/min: 700
                                                    Speed
                                                    Del.quantity cm3/: 184.0,..186.0
1000H.: (181.0...189.0)
Dispersion cm3/: 5.00
Outside diameter
x Wall thickness
                 : 6.00x1.50x1000
x Length mm
                                                                 1000H.: (9.00)
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    HIGHEST RATED SPEED
                                                    1st version
    per values
                                                    Control-lever
                                                     position degrees: 26...30
```

F08

Testing:

1st c-rod trav.mm : 11.10 Speed 1/min : 750...755 2nd c-rod trav.mm : 4.00 Speed 1/min : 780...793

LOWEST RATED SPEED I

Control-lever

position degrees: 12...20 Setting point w/out aux. spring

Speed 1/min: 350 Contr.-rod trav.mm: 4.9

Testing:

Speed 1/min: 100 C-rod trav.mm min: 19.50 Speed 1/min: 350

: 4.80...5.00 C-rod trav.mm

SET IDLE AUXILIARY SPRING Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

1/min : 100 Speed

Del.quantity cm3/: 170.0...190.0 1000H.: (166.0...194.0)

Remarks:

Observe VDT-I-420/120

0

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                  Test pressure, bar: 25...27
                                                                    : 4.00...4.10
Note inst. in remarks column
                                                  Prestroke mm
                                                                     : (3.95...4.15)
                                                  Contr.-rod trav.mm: 9.00...12.00
Test sheet
                  : MB 18,3 I 1
                                                                                         7
                  : 12.09.86
                                                  Cam sequence : 10- 9- 4- 1-
Edition
                                                                       - 6- 3- 5-
Superceeded
Calibrating oil : ISO-4113
                  : 0 401 879 703
Combination no.
                                                  SD ang. spacing CS: 0-45-72-117-144-189-
                                                                      216-261-288-333
Injection pump
                                                  Tolerance + - 0
                                                                    : 0.50 (0.75)
Pump designation
                  : PE10P110A320LS3818-
                  : 0 411 819 706
                                                  SD mark cyl. no. : 10
EP type number
Governor
Governor design. : RSV650...1150P0A823-
                                                  BASIC SETTING
                                                  1st speed 1/mi: 1180
Governer no.
                  : 0 421 833 244
                                                  Contr.-rod trav.mm: 10.90...11.00
Customer-spec. information
Customer
                  : DAIMLER-BENZ
                                                  Del.quantity cm3/: 11.3...11.5
Engine
                  : OM 423
                                                               100H.: (11.0...11.7)
1st version kW : 238.0
            1/min: 2300
                                                  Dispersion
                                                               cm3/:0.4
Speed
                                                               100H.: (0.8)
TEST BENCH REQUIREMENTS
Calibrating oil inlet temp. °C
                                                               1/min: 650.0
                                                  2nd speed
                                                  Contr.-rod trav. m: 5.7...5.9
Del.quantity cm3/: 1.2...2.0
                 : 38...42
                                                               100H.: (0.9...2.2)
Overflow valve
                                                               cm3/:0.4
                  : 1 417 413 025
                                                  Dispersion
                                                               100H.: (0.7)
Inlet press., bar : 1.50
                                                  SLEEVE POSITION
                                                  Control-lever position
Over flow
                                                              Degree: -3
1/min: 800
 quantity min. 1/h: 130...150
                                                  Speed
                                                  Cont.-rod travelmm: 0.30...1.00
Calibrating nozzle-holder
          : 0 681 343 009
 assembly
                                                  FULL-LOAD DELIV. AT FULL-LOAD STOP
Opening
pressure, bar : 172...175
                                                  1st version
                                                  Speed
                                                               1/min: 1180
                                                  Del.quantity cm3/: 113.0...115.0
1000H.: (110.5...117.5)
Test inj. tubing : 1 680 750 015
                                                  Dispersion cm3/: 4.00
                                                              1000H.: (8.00)
Outside diameter
x Wall thickness
                                                  HIGHEST RATED SPEED
x Length mm
                 : 6.00x1.50x600
                                                  1st version
                                                  Control-lever
(A) Injection pump setting values
                                                   position degrees: 36...44
    Insp. values in parentheses
    Set constant delivery quant.
    per values ____
                                                  Testing:
                                                  1st c-rod trav.mm: 10.00
                                                    Speed 1/min: 1210...1220
START OF DELIVERY
F10
```

2nd c-rod trav.mm: 4.00 1/min : 1105...1135 1/min : 1300 Speed 4th speed C-rod trav.mm : 0.30...1.40 LOWEST RATED SPEED I Control-lever position degrees: 21...29 Setting point w/out aux. spring 1/min : 650 Contr.-rod trav.mm: 5.7 Testing: 1/min : 100 Speed C-rod trav.mm min: 19.50 1/min : 650 Speed C-rod trav.mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Contr.-rod trav.mm: 2.00 TORQUE CONTROL Torque-control curve - 1st version 1st speed 1/min : 1180 C-rod trav.mm : 10.80...11.00 2nd speed 1/min: 1050 C-rod trav.mm : 11.70...11.90 FUEL-DELIVERY CHARACTERISTICS Speed 1/min: 950
Del.quantity cm3/: 127.0...131.0
1000H.: (124.0...134.0) cm3/:6.00Dispersion 1000H.: (9.00) STARTING FUEL DELIVERY 1/min : 100 Speed Del.quantity cm3/: 130.0...150.0 1000H.: (126.0...154.0) Remarks: **APPLICATION** Combine-harvester When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Note inst. in remarks column : STE 9,7 C Test sheet SD mark cyl. no. : 1 Edition : 10.86 BASIC SETTING Superceeded Calibrating oil : ISO-4113 1st speed 1/mi: 1200 Combination no. : 0 401 886 700 Contr.-rod trav.mm: 12.70...12.80 Injection pump Pump designation : PE6P110A721RS3102 Del.quantity cm3/: 15.4...15.7 Governor 100H.: (-) Governor design. : RSV250...1200P1A516 cm3/:0.4Customer-spec. information Dispersion Customer : STEYR 100H.: (0.75) Engine : WD 615.84 2nd speed 1/min: 250 Contr.-rod trav. m: 7.00...7.20 Del.quantity cm3/: 1.7...2.2 100H.: (-) Dispersion cm3/: 0.45 100H.: 0.75) 1st version kW : 191.0 1/min: 2400 Speed TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. OC : 38...42 SLEEVE POSITION Control-lever position Degree: -3 1/min: 800 Overflow valve : 1 417 413 025 Cont.-rod travelmm: 0.30...0.70 Inlet press., bar : -Governor-spring reload Calibrating nozzle-holder Notch setting x : ? : 0 681 343 009 assembly FULL-LOAD DELIV. AT FULL-LOAD STOP Opening pressure, bar : 172...175 1st version Speed 1/min: 1200 Charge press. hPa: 700 Del.quantity cm3/: 154.0...157.0 Test inj. tubing : 1 680 750 015 1000H.: (151.5...159.5) cm3/ : 4.0Outside diameter Dispersion x Wall thickness 1000H.: (7.5) : 6,00x2,00x600 x Length mm HIGHEST RATED SPEED 1st version (A) Injection pump setting values Insp. values in parentheses Control-lever Set constant delivery quant. position degrees: 62...70 per values \_\_\_\_ Testing: 1st c-rod trav.mm : 11.70 START OF DELIVERY Speed 1/min: 1240...1250 2nd 6-rod trav.mm: 4.00 : 2.80...2.90 Prestroke mm Speed 1/min: 1310...1340 3rd c-rod trav.mm: 0.30...1.40 : (2.75...2.95) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5-3-6-2-4 1/min : 1430 Speed LOWEST RATED SPEED I

```
Control-lever
position degrees: 18...26
Setting point w/out aux. spring
            1/min : 250
Speed
Contr.-rod trav.mm: 6.60
            1/min : 250
Speed
C-rod trav.mm
                : 7.00...7.20
C-rod trav.mm
                   : 2.00
            1/min: 490...550
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
            1/min : 500
hPa : 700
Speed
Pressure
Contr.-rod trav.mm: 12.70...12.80
Measurement
            1/min : 500
Speed
1st pressure hPa : -
                   : 10.20...10.30
  C-rod trav.mm
2nd pressure hPa : 470
                   : 12.10...12.20
  C-rod trav.mm
3rd pressure hPa : 300
  C-rod trav.mm
                   : 10.60...10.80
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 700
            1/min : 700
Speed
Del.quantity cm3/: 150.0...154.0
             1000H.: (147.0...157.0)
            cm3/:-
1000H.: (-)
Dispersion
Charge press. hPa : -
            1/min: 700
Speed
Del.quantity cm3/: 102.0...105.0
1000H.: (99.5...107.5)
             cm3/:-
Dispersion
             1000H.: (-)
STARTING FUEL DELIVERY
            1/min : 100
Speed
Del.quantity cm3/: 190.0...220.0
            1000H.: (-)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Cam sequence : 1- 5- 3- 6- 2- 4
Note inst. in remarks column
                                                     SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300
Tolerance + - 0.50 (0.75)
                   : VAL 7,2 A : 09.03.87
Test sheet
Edition
Superceeded
Calibrating oil
                   : ISO-4113
                                                     SD mark cyl. no. : 1
Combination no.
                   : 0 402 076 056
                                                     BASIC SETTING
Injection pump
                                                                    1/mi: 700
                                                     1st speed
Pump designation : PES6P110A320RS505
EP type number
                                                     Contr.-rod trav.mm: 12.00...12.10
                  : 0 412 016 072
Governor
Governor design. : RSV325...1150P0A522
                                                     Del.quantity cm3/: 13.8...14.1
Governer no.
                  : 0 421 833 242
                                                                   100H.: (13.5...14.3)
Customer-spec. information
                                                                   cm3/:0.4
Customer
                   : VALMET
                                                     Dispersion
Engine
                   : 612 DSJ
                                                                   100H.: (0.7)
                                                     2nd speed 1/min: 325.0
Contr.-rod trav. m: 7.1...7.3
1st version kW : 165.0
              1/min: 2300
Speed
                                                     Del.quantity cm3/: 1.2...1.6
                                                                   100H.: (0.9...1.8)
cm3/: 0.3
100H.: (0.6)
TEST BENCH REQUIREMENTS
                                                     Dispersion
Calibrating-oil inlet temp. °C
                   : 38...42
                                                     SLEEVE POSITION
Overflow valve
                                                     Control-lever position
                   : 1 417 413 025
                                                                  Degree: -3
                                                     Speed
                                                                  17min: 800
                                                     Cont.-rod travelmm: 0.30...0.70
Inlet press., bar : 1.50
Calibrating nozzle-holder
                                                     Governor-spring reload
                  : 0 681 343 009
                                                     Notch setting x : 4.00
 assembly
Opening -
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
pressure, bar
                  : 172...175
                                                     1st version
                                                     Speed 1/min: 700
Charge press. hPa: 700
Del.quantity cm3/: 138.0...141.0
Test inj. tubing
                   : 1 680 750 015
                                                                 1000H.: (135.5...143.5)
cm3/ : 4.00
Outside diameter
x Wall thickness
                                                     Dispersion
                   : 6.00x1.50x600
                                                                  1000H.: (7.50)
x Length mm
(A) Injection pump setting values
                                                     HIGHEST RATED SPEED
    Insp. values in parentheses
                                                     1st version
                                                     Control-lever
    Set constant delivery quant.
    per values ____
                                                     position degrees: 36...44
                                                     Testing:
START OF DELIVERY
                                                     1st c-rod trav.mm : 11.00
Test pressure, bar: 25...27
                                                               1/min : 1190...1200
                                                       Speed
                                                     2nd c-rod trav.mm: 4.00
                   : 3.00...3.10
Prestroke mm
                                                       Speed 1/min: 1290...1310
                   : (2.95...3.15)
                                                                 1/min : 1460
Contr.-rod trav.mm: 9.00...12.00
                                                     4th speed
F14
```

C-rod trav.mm : 0.30...1.40 LOWEST RATED SPEED I Control-lever position degrees: 17...25 Setting point w/out aux. spring 1/min : 325 Contr.-rod trav.mm: 6.7 Testing: 1/min : 100 Speed C-rod trav.mm min: 8.60 1/min : 325 Speed : 7.10...7.30 : 2.00 C-rod trav.mm C-rod trav.mm Speed 1/min : 460...520 TORQUE CONTROL Torque-control curve - 1st version 1st speed 1/min: 700 C-rod trav.mm : 12.00...12.10 2nd speed 1/min : 1150 C-rod trav.mm : 11.90...12.10 compensator (LDA, ADA, ALDA) 1st version Setting Speed 1/min : 500 hPa : 700 Pressure Contr.-rod trav.mm: 12.00...12.10 Measurement Speed 1/min: 500 1st pressure hPa : -C-rod trav.mm : 10.40...10.50 2nd pressure hPa : 400 : 11.50...11.60 C-rod trav.mm FUEL-DELIVERY CHARACTERISTICS Charge press. hPa : -1/min : 500 Speed Del.quantity cm3/: 102.0...105.0 1000H.: (99.5...107.5) STARTING FUEL DELIVERY 1/min : 100 Del.quantity cm3/: 200.0...220.0 1000H.: (196.0...224.0) LOW IDLE 1/min : 325 Speed Contr.-rod trav.mm: 7.10...7.30

Del.quantity cm3/: 12.0...16.0 1000H.: (9.5...18.5) Dispersion cm3/: 3.00 1000H.: (6.00)

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm
On activation of the starting solenoid, the start position must be reached.

APPLICATION
Tractor (tractor engines)

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                        : 4.40...4.50
                                                    Prestroke mm
                                                                        : (4.35...4.55)
Note inst. in remarks column
                                                     Contr.-rod trav.mm: 9.00...12.00
                                                                       : 1-5- 3- 6- 2- 4
Test sheet
                                                     Cam sequence
                   : SCA 11,0 V
                   : 09.03.87
Superceeded
                   : 9.84
                                                    SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Calibrating oil : ISO-4113
                   : 0 402 646 803
Combination no.
                                                     SD mark cyl. no. : 1
Injection pump
Pump designation : PE6P12OA72ORS7004
                                                     BASIC SETTING
EP type number
                  : 0 412 626 801
Governor
                                                     1st speed
                                                                   1/mi: 700
Governor design. : RQ750PA528
                                                     Contr.-rod trav.mm: 12.80...12.90
Governer no. : 0 421 801 126
                                                     Del.quantity cm3/: 20.9...21.1
Customer-spec. information
Customer
                   : SAAB-SCANIA
                                                                  100H.: (20.6...21.4)
TEST BENCH REQUIREMENTS
                                                     Dispersion
                                                                  cm3/:0.6
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                  100H.: (0.9)
Overflow valve
                                                     SLEEVE POSITION
                                                    Control-lever position
                   : 1 417 413 025
                                                                 Degree: -1
1/min: 600
Inlet press., bar : 1.50
                                                     Speed
                                                     Cont.-rod travelmm: 15.20...17.80
Calibrating nozzle-holder
              : 1 688 901 019
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
Opening.
                                                     1st version
                                                    Speed 1/min: 700
Del.quantity cm3/: 209.0...211.0
1000H.: (206.0...214.0)
                   : 207...210
 pressure, bar
Perforated-plate
                                                                 cm3/ : 6.00
 diameter mm
                   : 0,8
                                                    Dispersion
                                                                 1000H.: (9.00)
                  : 1 680 750 015
                                                    HIGHEST RATED SPEED
Test inj. tubing
                                                     1st version
Outside diameter
                                                    Control-lever
x Wall thickness
                                                     position degrees: 21...29
                 : 6.00x1.50x600
x Length mm
                                                     Testing:
(A) Injection pump setting values
                                                     1st c-rod trav.mm : 11.80
    Insp. values in parentheses
Set constant delivery quant.
                                                      Speed 1/min: 750...755
                                                    2nd c-rod trav.mm : 4.00
Speed 1/min : 784...797
4th speed 1/min : 850
    per values ____
                                                      C-rod trav.mm : 0.30...1.00
START OF DELIVERY
Test pressure, bar: 25...27
Date of mfg.
                 : 141
                                                    STARTING FUEL DELIVERY
                   : 5.00...5.10
Prestroke mm
                   : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
                                                    Speed
                                                                 1/min : 100
Date of mfg. : < 052
F16
```

Del.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 HIGH IDLE Contr.-rod trav.mm: 4.90...5.10 Dispersion cm3/: 4.00 1000H.: (7.00) Remarks: : DS11 43, 44, 45 ADDITIONAL INFORMATION 11 42, 45 Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm. Check and set without ROBO diaphragam Scania test specifications taken over on Aug. 8, 1983 For comb. with letter index see VDT-1-400/116. for sealing see VDT-I-400/117. Start of delivery - engine: DS 11 - 17° before TDC DSI 11 - 16° before TDC Firing sequence of engine: 1-5-3-6-2-4.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                   Prestroke mm
                                                                      : 4.40...4.50
                                                                      : (4.35...4.55)
Note inst. in remarks column
                                                   Contr.-rod trav.mm: 9.00...12.00
                                                                     : 1-5-3-6-2-4
                                                   Cam sequence
Test sheet
                   : SCA 11,0 V2
Edition
                   : 09.03.87
                   : 9.84
Superceeded
                                                   SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                  : ISO-4113
Calibrating oil
                   : 0 402 646 804
Combination no.
                                                   SD mark cyl. no. : 1
Injection pump
Pump designation
                  : PE6P12OA72ORS7004
                                                   BASIC SETTING
EP type number
                   : 0 412 626 801
                                                                  1/mi: 850
Governor
                                                   1st speed
Governor design. : RQ900PA528
Governer no.
                                                   Contr.-rod trav.mm: 12.80...12.90
                   : 0 421 801 127
Customer-spec. information
                                                   Del.quantity cm3/: 20.7...20.9
                   : SAAB-SCANIA
Customer
                                                                 100H.: (20.4...21.2)
TEST BENCH REQUIREMENTS
                                                   Dispersion
                                                                 cm3/:0.6
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                 100H.: (0.9)
                                                   SLEEVE POSITION
Overflow valve
                   : 1 417 413 025
                                                   Control-lever position
                                                                Degree: -1
1/min: 600
Inlet press., bar : 1.50
                                                   Speed
                                                   Cont.-rod travelmm: 15.20...17.80
Calibrating nozzle-holder
              : 1 688 901 019
                                                   FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
                                                   1st version
Opening
                   : 207...210
 pressure, bar
                                                   Speed
                                                                 1/min: 850
                                                   Del.quantity cm3/: 207.0...209.0
1000H.: (204.0...212.0)
Perforated-plate
                   : 0,8
                                                                cm3/ : 6.00
 diameter mm
                                                   Dispersion
                                                                1000H.: (9.00)
Test inj. tubing : 1 680 750 015
                                                   HIGHEST RATED SPEED
                                                   1st version
Outside diameter
                                                   Control-lever
x Wall thickness
                                                    position degrees: 22...30
                  : 6.00x1.50x600
x Length mm
                                                   Testing:
                                                   1st c-rod trav.mm : 11.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                     Speed 1/min: 900...905
                                                   2nd c-rod trav.mm : 4.00
                                                               1/min : 941...955
    per values
                                                     Speed
                                                               1/min : 1000
                                                   4th speed
                                                     C-rod trav.mm : 0.00...1.00
START OF DELIVERY
Test pressure, bar: 25...27
Date of mfg.
                : 141
                                                   STARTING FUEL DELIVERY
                   : 5.00...5.10
Prestroke mm
                   : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
                                                   Speed
                                                               1/min : 100
Date of mfg.
             : < 052
F18
```

Del.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 HIGH IDLE Contr.-rod trav.mm: 4.90...5.10 cm3/: 4.00 1000H.: (7.00) Dispersion Remarks: : DS11 43, 44, 45 Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm ADDITIONAL INFORMATION Check and set without ROBO diaphragam For comb. with letter index see VDT-I-400/116. For sealing see VDT-I-400/117. Scania test specifications taken over on Aug. 18, 1983 Engine model DS 11 - 170 before top dead center. Engine model DSI 11 - 160 before top dead center. Firing sequence of engine: 1-5-3-6-2-4.

```
: 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      Cam sequence
Note inst. in remarks column
Test sheet
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                    : SCA 11,0 V1
                    : 09.03.87
Superceeded
                    : 9.84
Calibrating oil
                 : ISO-4113
                                                      SD mark cyl. no. : 1
Combination no.
                    : 0 402 646 805
                                                      BASIC SETTING
Injection pump
                                                      1st speed
                                                                     1/mi: 1000
Pump designation : PE6P12OA72ORS7004
EP type number
                    : 0 412 626 801
                                                      Contr.-rod trav.mm: 12.80...12.90
Governor
                                                      Del.quantity cm3/: 21.4...21.6
Governor design. : RQ1050PA528
Governer no.
                    : 0 421 801 128
                                                                    100H.: (21.1...21.9)
Customer-spec. information
Customer
                   : SAAB-SCANIA
                                                                    cm3/:0.6
                                                      Dispersion
Engine
                    : DS11 43_DSI11 45
                                                                    100H.: (0.9)
TEST BENCH REQUIREMENTS
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
Calibrating-oil inlet temp. OC
                                                      1st version
                    : 38...42
                                                                    1/min: 1000
                                                      Speed
                                                     Del.quantity cm3/: 214.0...216.0
1000H.: (211.0...219.0)
Dispersion cm3/: 6.00
1000H.: (9.00)
Overflow valve
                    : 1 417 413 025
Inlet press., bar : 1.50
                                                     HIGHEST RATED SPEED
Calibrating nozzle-holder
 assembly
                : 1 688 901 019
                                                      Testing:
                                                      1st c-rod trav.mm : 11.80
                                                                  1/min : 1050...1055
Opening
                                                        Speed
 pressure, bar
                    : 207...210
                                                      2nd c-rod trav.mm : 4.00
                                                       Speed
                                                                  1/min : 1085...1095
Perforated-plate
                                                      4th speed
                                                                  1/min : 1150
 diameter mm
                    : 0,8
                                                        C-rod trav.mm : 0.00...1.00
Test inj. tubing : 1 680 750 015
                                                      STARTING FUEL DELIVERY
Outside diameter
x Wall thickness
                                                                   1/min : 100
                                                      Speed
                 : 6.00x1.50x600
                                                     Del.quantity cm3/: 240.0...290.0
x Length mm
                                                                   1000H.: (-)
(A) Injection pump setting values
                                                      Contr.~rod trav.mm: 20.00...21.00
    Insp. values in parentheses
Set constant delivery quant.
                                                     HIGH IDLE
                                                     Contr.-rod trav.mm: 4.90...5.10
Dispersion cm3/: 4.00
1000H.: (7.00)
    per values
START OF DELIVERY
Test pressure, bar: 25...27
                                                     Remarks:
Prestroke mm
                    : 5.00...5.10
                                                     ADDITIONAL INFORMATION
                    : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
```

Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragam

Scania test specifications taken over on Aug. 18, 1983 For comb. With letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: DS 11 - 17° before TDC DSI 11 - 16° before TDC firing sequence of engine: 1-5-3-6-2-4.

```
Cam sequence : 1-5- 3- 6- 2- 4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                       SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)
Test sheet
                    : SCA 11,0U13
Edition
                    : 09.03.87
Superceeded
Calibrating oil
                   : ISO-4113
                                                       SD mark cyl. no. : 1
Combination no.
                    : 0 402 646 817
                                                       BASIC SETTING
Injection pump
                                                       1st speed
                                                                       1/mi: 700
Pump designation
                   : PE6P120A720RS7001
                                                       Contr.-rod trav.mm: 13.20...13.30
EP type number
                   : 0 412 626 800
Governor
Governor design. : RQV275...1000PA539-4
                                                       Del.quantity cm3/: 19.9...20.1
Governer no.
                   : 0 421 813 432
                                                                      100H.: (19.6...20.4)
Customer-spec. information
                                                                      cm3/:0.6
Customer
                    : SCANIA
                                                       Dispersion
Engine
                    : DS11 15
                                                                      100H.: (0.9)
TEST BENCH REQUIREMENTS
                                                       2nd speed
                                                                     1/min: 275.0
                                                       Contr.-rod trav. m: 4.4...4.6
Calibrating-oil inlet temp. °C
                    : 38...42
                                                       (B) Setting of injection pump with
                                                           externally-mounted governor
Overflow valve
                    : 1 417 413 025
                                                       SLEEVE TRAVELS
                                                       1st speed 1/min: 275
                                                         Sleeve travel mm: 0.90...1.00
Inlet press., bar : 1.50
                                                       2nd speed 1/min: 350
Calibrating nozzle-holder
                                                         Sleeve travel mm: 1.80...2.70
                                                      3rd speed 1/min: 430
Sleeve travel mm: 3.40...4.40
4th speed 1/min: 500
Sleeve travel mm: 4.80...5.00
                : 1 688 901 019
 assembly
Opening
pressure, bar
                    : 207...210
                                                       5th speed 1/min: 1040
                                                         Sleeve travel mm: 8.00...8.10
Perforated-plate
diameter mm
                    : 0,8
                                                       SLEEVE POSITION
                                                       Control-lever position
                                                                    Degree: -1
1/min: 1090
                   : 1 680 750 015
Test inj. tubing
                                                       Speed
                                                       Cont.-rod travelmm: 15.20...17.80
Outside diameter
x Wall thickness
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
                   : 6.00x1.50x600
x Length mm
(A) Injection pump setting values
                                                       1st version
    Insp. values in parentheses
Set constant delivery quant.
                                                                     1/min: 700
                                                       Speed
                                                      Charge press. hPa: 900

Del.quantity cm3/: 199.0...201.0

1000H: (196.0...204.0)

Dispersion cm3/: 6.00
    per values
START OF DELIVERY
                                                                    1000H.: (9.00)
Test pressure, bar: 25...27
                                                      HIGHEST RATED SPEED
Prestroke inm
                    : 5.00...5.10
                    : (4.95...5.15)
                                                       1st version
Contr.-rod trav.mm: 9.00...12.00
```

Control-lever Del.quantity cm3/: 240.0...290.0 1000H.: (-) position degrees: 58...66 Contr.-rod trav.mm: 20.00...21.00 Testing: 1st c-rod trav.mm : 12.20 LOW IDLE 1/min : 1040...1050 Speed 2nd c-rod trav.mm : 4.00 1/min : 275 Speed Speed 1/min: 1190...1220 4th speed 1/min: 1300 Contr.-rod trav.mm: 4.40...4.60 cm3/: 3.00 Dispersion C-rod trav.mm : 0.00...1.00 1000H.: (6.00) Because of flattening, set the spring preload on new delivery-valve holders LOWEST RATED SPEED I Control-lever to 2.9...3.1 mm. position degrees: 4...12 Testing: 1/min : 100 Speed C-rod trav.mm min : 5.90 ADDITIONAL INFORMATION Speed 1/min : 275 : 4.40...4.60 C-rod trav.mm : 2.00 C-rod trav.mm 1/min : 320...380 Speed Delivery-valve spring pre-tension 3.2...3.4 mm. compensator (LDA,ADA,ALDA) Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring 1st version preload on new delivery-valve holders Setting to 3.0...3.1 mm. 1/min : 500 Speed Pressure hPa : 900 Contr.-rod trav.mm: 13.20...13.30 Measurement Check and set without ROBO diaphragam 1/min : 500 Speed 1st pressure hPa : -C-rod trav.mm : 11.60...11.70 2nd pressure hPa : 420 Scania test specifications taken over on Aug. 18, 1983 For comb. With letter index see : 12.80...12.90 C-rod trav.mm 3rd pressure hPa : 290 VDT-I-400/116. : 11.90...12.10 C-rod trav.mm FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa: 900 For sealing see VDT-I-400/117. 1/min : 1000 Speed Del.quantity cm3/: 193.0...201.0 1000H.: (191.0...203.0) Charge press. hPa : -Start of delivery - engine: 17° before 1/min : 500 Speed Del.quantity cm3/: 160.0...164.0 Firing sequence of engine: 1000H.: (158.0...166.0) 1-5-3-6-2-4. STARTING FUEL DELIVERY Speed 1/min : 100

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Cam sequence Note inst. in remarks column SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Test sheet Edition Superceeded : SCA 11\_0U11 : 09.03.87 : 10.85 Calibrating oil : ISO-4113 SD mark cyl. no. : 1 : 0 402 646 819 BASIC SETTING Combination no. Injection pump 1st speed 1/mi: 700 Pump designation : PE6P12OA72ORS7001 EP type number : 0 412 626 800 Contr.-rod trav.mm: 11.70...11.80 Governor Del.quantity cm3/ : 16.1...16.3 Governor design. : RQ200/1100PA713 Governer no. : 0 421 801 262 100H.: (15.8...16.6) Customer-spec. information Customer : SCANIA cm3/:0.5Dispersion Engine : DS11 25,26 100H.: (0.8) TEST BENCH REQUIREMENTS 1/min: 225.0 2nd speed Contr.-rod trav. m: 4.9...5.1 Calibrating-oil inlet temp. °C Del.quantity cm3/: 1.3...1.7 : 38...42 100H.: (-) Dispersion cm3/:0.3Overflow valve 100H.: (0.6) : 1 417 413 025 SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -1 1/min: 600 Calibrating nozzle-holder Speed : 1 688 901 019 Cont.-rod travelmm: 15.20...17.80 assembly FULL-LOAD DELIV. AT FULL-LOAD STOP Opening : 207...210 pressure, bar 1st version 1/min: 700 Perforated-plate Speed Charge press. hPa: 900
Del.quantity cm3/: 161.0...163.0
1000H.: (158.0...166.0)
Dispersion cm3/: 5.00 : 0,8 diameter mm : 1 680 750 015 Test inj. tubing 1000H.: (8.00) Outside diameter HIGHEST RATED SPEED x Wall thickness x Length mm : 6.00x1.50x600 Setting point: 1/min : 600 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. Contr.-rod trav.mm: 16.0 per values \_\_\_\_ Testing: 1st c-rod trav.mm: 10.70 1/min : 1145...1160 START OF DELIVERY Speed 2nd c-rod trav.mm : 4.00 Test pressure, bar: 25...27 1/min : 1290...1320 Speed 4th speed 1/min: 1400 : 5.00...5.10 Prestroke mm : (4.95...5.15) C-rod trav.mm : 0.00...1.00 Contr.-rod trav.mm: 9.00...12.00 F24

LOWEST RATED SPEED I Setting point w/out aux. spring 1/min : 225 Contr.-rod trav.mm: 4.5 Testing: 1/min : 100 Speed C-rod trav.mm min: 5.90 Speed 1/min: 225 : 4.40...4.60 C-rod trav.mm : 2.00 C-rod trav.mm 1/min : 300...340 Speed compensator (LDA, ADA, ALDA) 1st version Setting 1/min : 500 Speed hPa : 900 Pressure Contr.-rod trav.mm: 11.70...11.80 Measurement  $1/\min : 500$ Speed 1st pressure hPa C-rod trav.mm : 10.40...10.50 2nd pressure hPa : 220 C-rod trav.mm : 11.40...11.50 3rd pressure hPa : 165 C-rod trav.mm : 10.50...10.70 FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900 1/min : 1100 Speed Del.quantity cm3/: 163.0...171.0 1000H.: (161.0...173.0) Charge press. hPa : -1/min : 500 Speed Del.quantity cm3/: 120.0...124.0 1900H.: (118.0...126.0) STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 LOW IDLE 1/min : 225 Speed Contr.-rod trav.mm: 4.40...4.60 Because of flattening, set the spring F25

preload on new delivery-valve holders to 2.9...3.1  $\,\mathrm{mm}.$ 

ADDITIONAL INFORMATION

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on May 17, 1984 Start of delivery - engine: DS11 25 - 15° before TDC DS11 26 - 11° before TDC

Firing sequence of engine: 1-5-3-6-2-4.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                          : 1-5-3-6-2-4
                                                      Cam sequence
Note inst. in remarks column
Test sheet
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                    : SCA 11,0U12
                    : 12.09.86
Superceeded
                   : 8.85
Calibrating oil : ISO-4113
                                                      SD mark cyl. no. : 1
Combination no.
                    : 0 402 646 819 W
                                                      BASIC SETTING
Injection sump
                                                      1st speed
                                                                     1/mi: 700
Pump designation : PE6P120A720RS7001W
EP type number
                    : 0 412 626 800
                                                      Contr.-rad trav.mm: 12.60...12.70
Governor
Governor design. : RQ200/1100PA713
                                                      Del.quantity cm3/: 18.0...18.2
Governer no.
                    : 0 421 801 262
                                                                    100H.: (17.7...18.5)
Customer-spec. information
                                                                    cm3/:0.6
Customer
                    : SCANIA
                                                      Dispersion
Engine
                    : DS11 28
                                                                    100H.: (0.9)
TEST BENCH REQUIREMENTS
                                                                    1/min: 225.0
                                                      2nd speed
                                                      Contr.-rod trav. m: 4.4...4.6
Del.quantity cm3/: 1.1...1.5
100H.: (-)
Calibrating-oil inlet temp. °C
                    : 38...42
                                                                    cm3/:0.3
                                                      Dispersion
                                                                    100H.: (0.6)
Overflow valve
                    : 1 417 413 025
                                                      SLEEVE POSITION
                                                      Control-lever position
Inlet press., bar : 1.50
                                                                   Degree: 45...47
17min: 600
Calibrating nozzle-holder
                                                      Speed
                : 1 688 901 019
                                                      Cont.-rod travelmm: 15.20...17.80
 assembly
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
Opening
                    : 207...210
 pressure, bar
                                                      1st version
Perforated-plate
                                                      Speed
                                                                    1/min: 700
                                                     Charge press. hPa: 500
Del.quantity cm3/: 180.0...182.0
1000H.: (177.0...185.0)
Dispersion cm3/: 6.00
 diameter mm
                    : 0,8
Test inj. tubing
                   : 1 680 750 015
                                                                   1000H.: (9.00)
Outside diameter
x Wall thickness
                                                      HIGHEST RATED SPEED
x Length mm
                   : 6.00x1.50x600
                                                      Setting point:
                                                                  1/min : 600
(A) Injection pump setting values
                                                      Speed
    Insp. values in parentheses
Set constant delivery quant.
                                                      Contr.-rod trav.mm: 16.5
    per values ____
                                                      Testing:
                                                      1st c-rod trav.mm : 11.60
START OF DELIVERY
                                                        Speed 1/min: 1145...1160
                                                      2nd c-rod trav.mm : 4.00
Test pressure, bar: 25...27
                                                        Speed
                                                                  1/min : 1270...1300
                                                      4th speed 1/min : 1400
Prestroke mm
                    : 5.00...5.10
                    : (4.95...5.15)
                                                        C-rod trav.mm : 0.00...1.00
Contr.-rod trav.mm: 9.00...12.00
F25
```

LOWEST RATED SPEED I Dispersion cm3/:3.001000H.: (6.00) Setting point w/out aux. spring 1/min : 225 Speed Contr.-rod trav.mm: 4.5 Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm. Testing: 1/min : 100 Speed C-rod trav.mm min : 5.90 1/min : 225 Speed : 4.40...4.60 C-rod trav.mm C-rod trav.mm : 2.00 ADDITIONAL INFORMATION 1/min : 300...340 Speed compensator (LDA,ADA,ALDA) minning, Delivery-valve spring pre-tension 3.2...3.4 mm. 1st version Setting Permissible alteration of 3.0...3.5 mm 1/min : 500 Because of flattening, set the spring Speed hPa : 500 preload on new delivery-valve holders Pressure Contr.-rod trav.mm: 12.60...12.70 to 3.0...3.1 mm. Measurement 1/min : 500 Speed 1st pressure hPa Check and set without ROBO diaphragam : 10.30...10.40 C-rod trav.mm : 220 2nd pressure hPa C-rod trav.mm : 11.40...11.50 3rd pressure hPa : 165 For comb. with letter index see C-rod trav.mm : 10.50...10.70 VDT-I-400/116. FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 500 1/min : 1100 For sealing see VDT-I-400/117. Speed Del.quantity cm3/: 178.0...186.0 1000H.: (176.0...188.0) Charge press. hPa : -1/min : 500 Speed Del.quantity cm3/: 120.0...124.0 Scania test specifications taken over 1000H.: (118.0...126.0) on Aug. 30, 1984 Start of delivery - engine: 110 before STARTING FUEL DELIVERY Firing sequence of engine: 1-5-3-6-2-4. Speed 1/min : 100 Del.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 LOW IDLE 1/min : 225 Speed Contr.-rod trav.mm: 4.40...4.60 Del.quantity cm3/: 11.0...15.0 1000H.: (-)

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      Cam sequence : 1-5- 3- 6- 2- 4
Note inst. in remarks column
Test sheet
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                    : SCA 11,1 A
                   : 09.03.87
                   : 2.86
Superceeded
Calibrating oil : ISO-4113
                                                       SD mark cyl. no. : 1
                    : 0 402 646 828
Combination no.
                                                      BASIC SETTING
Injection pump
                                                                      1/mi: 700
                                                       1st speed
Pump designation : PE6P12OA72ORS7015
                                                       Contr.-rod trav.mm: 14.30...14.40
                    : 0 412 626 810
EP type number
Governor
Governor design.
                    : RQV200...1000PA768
                                                       Del.quantity cm3/: 21.8...22.0
Governer no.
                    : 0 421 813 504
                                                                     100H.: (21.5...22.3)
Customer-spec. information
Customer
                   : SCANIA
                                                      Dispersion
                                                                     cm3/: 0.6
                    : DSC11 03
                                                                     100H.: (0.9)
Engine
                                                      2nd speed 1/min: 225.0
Contr.-rod trav. m: 4.8...5.0
TEST BENCH REQUIREMENTS
                                                      Del.quantity cm3/: 1.5...1.9
Calibrating-oil inlet temp. OC
                    : 38...42
                                                                     cm3/:0.3
                                                      Dispersion
                                                                     100H.: (0.6)
Overflow valve
                    : 1 417 413 025
                                                       (B) Setting of injection pump with
                                                           externally-mounted governor
Inlet press., bar: 1.50
                                                      SLEEVE TRAVELS
                                                      1st speed 1/min: 225
Sleeve travel mm: 1.30...1.50
Calibrating nozzle-holder
                 : 1 688 901 019
 assembly
                                                       2nd speed 1/min: 270
                                                      Sleeve travel mm: 1.90...2.10
3rd speed 1/min: 360
Opening
                   : 207...210
 pressure, bar
                                                      Sleeve travel mm: 2.60...3.00
4th speed 1/min: 1040
Sleeve travel mm: 8.40...8.60
Perforated-plate
 diameter mm
                    : 0,8
                                                      5th speed 1/min: 1160
                                                        Sleeve travel mm: 10.10...10.30
Test inj. tubing : 1 680 750 015
                                                      SLEEVE POSITION
Outside diameter
                                                      Control-lever position
                                                                   Degree: -1
1/min: 1040
x Wall thickness
x Length mm
                 : 6.00x1.50x600
                                                      Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
    Set constant delivery quant.
                                                      1st version
    per values
                                                      Speed
                                                                     1/min: 700
                                                      Charge press. hPa : 900
START OF DELIVERY
                                                      Del.quantity cm3/: 218.0...220.0
1000H:: (215.0...223.0)
Dispersion cm3/: 6.00
1000H:: (9.00)
Test pressure, bar: 25...27
                    : 5.00...5.10
Prestroke mm
                    : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
F28
```

HIGHEST RATED SPEED Speed 1/min : 100 De!.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 1st version Control-lever position degrees: 58...66 Testing: Remarks: 1st c-rod trav.mm : 13.30 Because of flattening, set the spring Speed 1/min: 1040...1050 preload on new delivery-valve holders 2nd c-rod trav.mm : 4.00 to 2.9...3.1 mm. Speed 1/min: 1150...1180 4th speed 1/min: 1300 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I ADDITIONAL INFORMATION Control-lever position degrees: 6...14 Testing: 1/min : 100 Delivery-valve spring pre-tension Speed C-rod trav.mm min : 6.30 3.2...3.4 mm. Speed 1/min : 225 Permissible alteration of 3.0...3.5 mm C-rod trav.mm : 4.80...5.00 C-rod trav.mm : 2.00 Because of flattening, set the spring preload on new delivery-valve holders 1/min : 330...390 to 3.0...3.1 mm. Speed compensator (LDA,ADA,ALDA) 1st version Check and set without ROBO diaphragam Setting Speed 1/min: 500 Pressure hPa: 900 Contr.-rod trav.mm: 14.30...14.40 For comb. with letter index see VDT-I-400/116. Measurement 1/min : 500 Speed 1st pressure hPa : -C-rod trav.mm : 12.50...12.60 2nd pressure hPa : 430 For sealing see VDT-I-400/117. C-rod trav.mm : 13.70...13.80 3rd pressure hPa : 280 : 12.70...12.90 C-rod trav.mm FUEL-DELIVERY CHARACTERISTICS Scania test specifications taken over on May 3, 1985 Start of delivery - engine: 17° before 1st version Charge press. hPa : 900 1/min : 1000 Firing sequence of engine: Speed Del.quantity cm3/ : 208.0...216.0 1-5-3-6-2-4. 1000H.: (206.0...218.0) Charge press. hPa : -Speed 1/min : 500 Del.quantity cm3/: 175.0...179.0 1000H.: (173.0...181.0)

STARTING FUEL DELIVERY

```
: 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Cam sequence
Note inst. in remarks column
                                                     SD ang. spacing CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)
Test sheet
                   : SCA 11,1 A1
Edition
                   : 13.11.86
Superceeded
Calibrating oil
                   : ISO-4113
                                                     SD mark cyl. no. : 1
Combination no.
                   : 0 402 646 828 Z
                                                     BASIC SETTING
Injection pump
                                                                    1/mi: 700
                                                     1st speed
Pump designation : PE6P120A720RS7015Z
                   : 0 412 626 810
                                                     Contr.-rod trav.mm: 13.10...13.20
EP type number
Governor
Governor design. : RQV200...1000PA768
                                                     Del.quantity cm3/: 18.9...19.1
                   : 0 421 813 504
Governer no.
                                                                   100H.: (18.6...19.4)
Customer-spec. information
Customer
                   : SCANIA
                                                     Dispersion
                                                                   cm3/:0.6
Engine
                    : DSC11 06
                                                                   100H.: (0.9)
TEST BENCH REQUIREMENTS
                                                                   1/min: 225.0
                                                     2nd speed
                                                     Contr.-rod trav. m: 4.8...5.0
Calibrating-oil inlet temp. OC
                                                     Del.quantity cm3/: 1.5...1.9
100H.: (-)
inlet temp.
                    : 38...42
                                                                   cm3/:0.3
                                                     Dispersion
                                                                   100H.: (0.6)
Overflow valve
                    : 1 417 413 025
                                                      (B) Setting of injection pump with
Inlet press., bar : 1.50
                                                         externally-mounted governor
                                                     SLEEVE TRAVELS
Calibrating nozzle-holder
                  : 1 688 901 019
                                                     1st speed 1/min: 225
 assembly
                                                       Sleeve travel mm: 1.30...1.50
                                                     2nd speed 1/min: 270
Opening
                   : 207...210
                                                       Sleeve travel mm: 1.90...2.10
 pressure, bar
                                                     3rd speed 1/min: 360
                                                       Sleeve travel mm: 2.60...3.00 th speed 1/min: 1040 Sleeve travel mm: 8.40...8.60
Perforated-plate
 diameter mm
                    : 0,8
                                                     4th speed
                                                     5th speed 1/min: 1160
                   : 1 680 750 015
                                                       Sleeve travel mm: 10.10...10.30
Test inj. tubing
Outside diameter
                                                     SLEEVE POSITION
x Wall thickness
                                                     Control-lever position
                                                                  Degree: -1
1/min: 1040
                   : 6.00x1.50x600
x Length mm
                                                     Speed
(A) Injection pump setting values
                                                     Cont.-rod travelmm: 15.20...17.80
    Insp. values in parentheses
    Set constant delivery quant.
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                     1st version
START OF DELIVERY
                                                     Speed
                                                                   1/min: 700
                                                     Charge press. hPa : 900
Test pressure, bar: 25...27
                                                     Del.quantity cm3/: 189.0...191.0
1000H.: (186.0...194.0)
Dispersion cm3/: 6.00
1000H.: (9.00)
Prestroke mm
                    : 5.00...5.10
                   : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
G02
```

HIGHEST RATED SPEED 1st version Control-lever position degrees: 56...64 Testing: 1st c-rod trav.mm : 12.10 Speed 1/min: 1040...1050 2nd c-rod trav.mm : 4.00 Speed 1/min: 1150...1180 4th speed 1/min: 1300 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 6...14 Testing: 1/min : 100 Speed C-rod trav.mm min : 6.30 Speed 1/min : 225 C-rod trav.mm : 4.80...5.00 C-rod trav.mm : 2.00 Speed 1/min: 330...390 compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed hPa : 900 Pressure Contr.-rod trav.mm: 13.10...13.20 Measurement 1/min : 500 Speed 1st pressure hPa : -C-rod trav.mm : 12.50...12.60 2nd pressure hPa : 320 C-rod trav.mm : 12.90...13.00 FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900 1/min : 1000 Del.quantity cm3/: 184.0...192.0 1000H.: (182.0...194.0) Charge press. hPa : -Speed 1/min : 500 Del.quantity cm3/: 175.0...179.0 1000H.: (173.0...181.0) STARTING FUEL DELIVERY Speed 1/min : 100

G03

Del.quantity cm3/: 240.0...290.0 1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min: 225 Contr.-rod trav.mm: 4.70...4.90

Remarks: Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on May 3, 1985 Start of delivery - engine: 17° before TDC Firing sequence of engine: 1-5-3-6-2-4.

```
Cam sequence : 1-5- 3- 6- 2- 4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Test sheet
                    : SCA 9,0 F
                    : 17.12.86
Edition
Superceeded
Calibrating oil : ISO-4113
                                                      SD mark cyl. no. : 1
Combination no.
                    : 0 402 646 833
                                                      BASIC SETTING
                                                                     1/mi: 700
Injection pump
                                                      1st speed
Pump designation : PE6P12OA32ORS7102J
EP type number
                                                      Contr.-rod trav.mm: 9.00...9.10
                    : C 412 626 812
Governor
                    : RQV200...1100PA795
: 0 421 813 536
                                                      Del.quantity cm3/: 10.6...10.8
Governor design.
Governer no.
                                                                    100H.: (10.3.,.11.1)
Customer-spec. information
                                                      Dispersion
                                                                    cm3/:0.5
Customer
                   : SCANIA
Engine
                    : DS9 01
                                                                    100H.: (0.8)
                                                      2nd speed 1/min: 225.0
Contr.-r@d trav. m: 5.1...5.3
TEST BENCH REQUIREMENTS
                                                      Del.quar/tity cm3/: 1.5...1.9
Calibrating-oil inlet temp. OC
                    : 38...42
                                                                    cm3/:0.3
                                                      Dispers#on -
                                                                    100H.: (0.6)
Overflow valve
                    : 1 417 413 025
                                                      (B) Setting of injection pump with
                                                          externally-mounted governor
Inlet press., bar: 1.50
                                                      SLEEVE TRAVELS
                                                      1st speed 1/min: 225
Calibrating nozzle-holder
                 : 1 688 901 019
                                                        Sleeve travel mm: 0.90...1.10
 assembly
                                                      2nd speed 1/min: 350
                                                        Sleeve travel mm: 1.80...2.20
Opening.
                    : 207...210
 pressure, bar
                                                      3rd speed 1/min: 800
                                                      Sleeve travel mm: 5.20...5.50
4th speed 1/min: 1150
Sleeve travel mm: 7.90...8.10
5th speed 1/min: 1210
Perforated-plate
 diameter mm
                    : 0,8
                                                        Sleeve travel mm: 8.50...8.80
Test inj. tubing : 1 680 750 015
                                                      SLEEVE POSITION
                                                      Control-lever position
Outside diameter
x Wall thickness
                                                                   Degree: -1
                                                                    1/min: 1200
                    : 6.00x1.50x600
x Length mm
                                                      Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                      1st version
                                                      Speed
                                                                    1/min: 700
                                                      Del.quantity cm3/: 106.0...108.0
START OF DELIVERY
                                                                   1000H.: (103.0...111.0)
Test pressure, bar: 25...27
                                                                   cm3/ : 5.00
1000H.: (8.00)
                                                      Dispersion
Prestroke mm
                    : 5.00...5.10
                    : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
                                                      HIGHEST RATED SPEED
G04
```

1st version Control-lever position degrees: 40...48 Testing: 1st c-rod trav.mm : 8.00 Speed 1/min: 1140...1150 2nd c-rod trav.mm: 4.00 1/min: 1190...1220 Speed 4th speed 1/min: 1350 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 8...16 Testing: 1/min : 100 Speed C-rod trav.mm min: 6.30 1/min : 225 Speed C-rod trav.mm : 4.80...5.00 C-rod trav.mm : 2.00 Speed 1/min : 280...340 STARTING FUEL DELIVERY 1/min : 100 Speed Del.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 LOW IDLE Speed 1/min : 225 Contr.-rod trav.mm: 4.80...5.00 Remarks: Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm. ADDITIONAL INFORMATION Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on March 19, 1986 Start of delivery - engine: 15° before TDC Firing sequence of engine: 1-5-3-6-2-4.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                        Contr.-rod trav.mm: 9.00...12.00
                                                                      : < 052
                                                        Date of mfg.
Note inst. in remarks column
                                                        Prestroke mm
                                                                            : 4.40...4.50
                                                                            : (4.35...4.55)
Test sheet
                    : SCA 14.2 A3 : 21.05.87
                                                                            : 1- 2- 7- 3- 4- 5-
                                                        Cam sequence
                                                                              6- 8
Edition
Superceeded
                    : 8.85
Calibrating oil
                    : ISO-4113
                                                       SD ang. spacing CS: 0-45-90-135-180-225-
SD ang. spacing CS: 270-315
Tolerance + - : 0.50 (0.75)
                    : 0 402 648 801
Combination no.
Injection pump
Pump designation
                    : PE8P120A920/4L87002
EP type number
                    : 0 412 628 800
                                                        SD mark cyl. no. : 1
Governor
Governor design. : RQV250...1000PA547
                                                        BASIC SETTING
Governer no.
                    : 0 421 813 270
                                                                       1/mi: 700
                                                        1st speed
Customer-spec. information
                                                        Contr.-rod trav.mm: 13.20...13.30
Customer
                    : SCANIA
                    : DS14 06
                                                        Del.quantity cm3/ : 18.7...18.9
Engine
TEST BENCH REQUIREMENTS
                                                                      100H.: (18.4...19.2)
Calibrating-oil inlet temp. °C
                                                        Dispersion
                                                                      cm3/:0.6
                    : 38...42
                                                                      100H.: (0.9)
Overflow valve
                                                        2nd speed 1/min: 225.0
                    : 1 417 413 025
                                                       Contr.-rod trav. m: 4.9...5.1
Del.quantity cm3/: 1.0...1.4
Inlet press., bar : 1.50
                                                                      100H.: (-)
                                                                      cm3/:0.3
Calibrating nozzle-holder
                                                       Dispersion
                                                                      100H.: (0.6)
              : 1 688 901 019
 assembly
                                                        (B) Setting of injection pump with
Opening
                    : 207...210
 pressure, bar
                                                            externally-mounted governor
                                                        SLEEVE TRAVELS
Perforated-plate
                    : 0,8
                                                        1st speed 1/min: 225
 diameter mm
                                                          Sleeve travel mm: 1.30...1.40
                                                       2nd speed 1/min: 340
                                                       Sleeve travel mm: 2.50...2.80

3rd speed 1/min: 550

Sleeve travel mm: 4.00...4.30

4th speed 1/min: 1045

Sleeve travel mm: 8.40...8.60
Test inj. tubing : 1 680 750 015
Outside diameter
x Wall thickness
                  : 6.00x1.50x600
x Length mm
                                                        5th speed 1/min: 1150
                                                          Sleeve travel mm: 9.80...10.20
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       SLEEVE POSITION
    per values
                                                       Control-lever position
                                                                     Degree: -1
                                                       Speed 1/min: 1040
Cont.-rod travelmm: 15.20...17.80
START OF DELIVERY
Test pressure, bar: 25...27
Date of mfg.
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
Prestroke mm
                    : 5.00...5.10
                    : (4.95...5.15)
                                                       1st version
G06
```

```
1/min: 700
                                                   Speed
                                                               1/min : 500
Speed
Charge press. hPa: 900
Del.quantity cm3/: 187.0...189.0
1000H.: (184.0...192.0)
                                                   Del.quantity cm3/: 137.0...141.0
1000H.: (135.0...145.0)
Dispersion cm3/ : 6.00
            1000H.: (9.00)
                                                   STARTING FUEL DELIVERY
HIGHEST RATED SPEED
1st version
                                                   Speed
                                                               1/min : 100
                                                   Del.quantity cm3/: 240.0...290.0
Control-lever
                                                   1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00
 position degrees: 58...66
Testing:
1st c-rod trav.mm : 12.20 .....
                                                   LOW IDLE
  Speed 1/min: 1040...1050
2nd c-rod trav.mm : 4.00
                                                   Speed 1/min : 225
                                                   Contr.-rod trav.mm: 4.40...4.60
           1/min : 1140...1170
 Speed
3rd c-rod trav.mm : 4.00
4th speed 1/min : 1250
                                                   Remarks:
  C-rod trav.mm : 0.00...1.00
                                                   Delivery-valve spring pre-tension
                                                   3.2...3.4 mm.
LOWEST RATED SPEED I
                                                   Permissible alteration of 3.0...3.5 mm
                                                   Because of flattening, set the spring
Control-lever
 position degrees: 5...13
                                                   preload on new delivery-valve holders
                                                   to 2.9...3.1 mm.
Testing:
            1/min : 100
Speed
C-rod trav.mm min : 5.90-3
Speed 1/min : 225
C-rod trav.mm : 4.40...4.60
                                                   ADDITIONAL INFORMATION
                  : 2.00
C-rod trav.mm
           1/min : 310...370
Speed
 compensator (LDA, ADA, ALDA)
                                                   Check and set without ROBO diaphragam
1st version
Setting
            1/min : 500
Speed
                                                   For comb. with letter index see
Pressure
            hPa : 900
Contr.-rod trav.mm: 13.20...13.30
                                                   VDT-I-400/116.
Measurement
Speed 1/min: 500
                                                   For sealing see VDT-I-400/117.
1st pressure hPa : -
  C-rod trav.mm : 11.30...11.40
2nd pressure hPa : 350
                   : 12.80...12.90
 C-rod trav.mm
3rd pressure hPa : 230
  C-rod trav.mm
                  : 11.90...12.10
                                                   Scania test specifications taken over
                                                   on Aug. 19, 1983
                                                   Engine start of delivery: 180 BTDC
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 900
            1/min : 1000
Speed
                                                   Engine firing sequence: 1-5-4-2-6-3-7-8
Del.quantity cm3/: 184.0...192.0
1000H.: (182.0...194.0)
Charge press. hPa : -
G07
```

```
Cam sequence : 1- 2- 7- 3- 4- 5- 6- 8
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
Test sheet
                   : SCA 14-2 A1
                                                    SD ang. spacing CS: 0-45-90-135-180-225-
                   : 06.10.86
Edition
Superceeded
                                                                         270-315
                   : 10.84
                                                    Tolerance + - 0
Calibrating oil : ISO-4113
                                                                       : 0.50 (0.75)
                   : 0 402 648 802
Combination no.
                                                    SD mark cyl. no. : 1
Injection pump
                                                    BASIC SETTING
Pump designation : PE8P120A920LS7002S
EP type number : 0 412 628 800
                                                                   1/mi: 700
                                                    1st speed
Governor
                                                    Contr.-rod trav.mm: 13.00...13.10
Governor design. : RQV200...1050PA547
Governer no.
                   : 0 421 813 293
                                                    Del.quantity cm3/: 18.3...18.5
Customer-spec. information
                                                                  100H.: (18.0...18.8)
Customer
                   : SAAB-SCANIA
Engine
                   : DS14 07
                                                    Dispersion
                                                                  cm3/:0.6
TEST BENCH REQUIREMENTS
                                                                  100H.: (0.9)
Calibrating-oil inlet temp. °C
                                                                  1/min: 225.0
                                                    2nd speed
                   : 38...42
                                                    Contr.-rod trav. m: 4.4...4.6
                                                    Del.quantity cm3/: 1.0...1.4
                                                                 100H.: (-)
cm3/: 0.3
100H.: (0.6)
Overflow valve
                   : 1 417 413 025
                                                    Dispersion
Inlet press., bar: 1.50
                                                    (B) Setting of injection pump with
Calibrating nozzle-holder
                                                        externally-mounted governor
              : 1 688 901 019
 assembly
                                                    SLEEVE TRAVELS
                                                    1st speed 1/min: 225
Opening
                                                    Sleeve travel mm: 1.20...1.40
2nd speed 1/min: 280
Sleeve travel mm: 1.80...2.10
3rd speed 1/min: 350
                   : 207...210
pressure, bar
Perforated-plate
diameter mm
                   : 0.8
                                                      Sleeve travel mm: 2.40...2.80
                                                                1/min: 1090
                                                    4th speed
Test inj. tubing : 1 680 750 015
                                                      Sleeve travel mm: 8.40...8.60
                                                    5th speed 1/min: 1200
                                                      Sleeve travel mm: 9.80...10.10
Outside diameter
x Wall Chickness
                : 6.00x1.50x600
                                                    SLEEVE POSITION
x Length mm
                                                    Control-lever position
                                                                Degree: -1
(A) Injection pump setting values
                                                                 17min: 1100
    Insp. values in parentheses
Set constant delivery quant.
                                                    Speed
                                                    Cont.-rod travelmm: 15.20...17.80
    per values
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
START OF DELIVERY
Test pressure, bar: 25...27
                                                    1st version
                                                                  1/min: 700
                                                    Speed
                                                    Charge press. hPa: 900
Prestroke mm
                   : 5.00...5.10
                                                    Del.guantity cm3/: 183.0...185.0
                   : (4.95...5.15)
                                                                 1000H.: (180.0...188.0)
Contr.-rod trav.mm: 9.00...12.00
GO8
```

```
Dispersion cm3/ : 6.00
                                                      STARTING FUEL DELIVERY
             1000H.: (9.00)
                                                     Speed     1/min : 100
Del.quantity cm3/ : 240.0...290.0
Contr.-rod trav.mm: 20.00...21.00
HIGHEST RATED SPEED
1st version
Control-lever
 position degrees: 57...65
                                                     LOW IDLE
Testing:
1st c-rod trav.mm : 12.00
                                                                  1/min : 225
                                                      Speed
                                                      Contr.-rod trav.mm: 4.40...4.60
           1/min : 1090...1100
  Speed
                                                     Del.quantity cm3/: 10.0...14.0
1000H.: (-)
Dispersion cm3/: 3.00
1000H.: (6.00)
2nd c-rod trav.mm : 4.00
            1/min : 1180...1210
  Speed
             1/min : 1300
4th speed
  C-rod trav.mm : 0.00...1.00
LOWEST RATED SPEED I
                                                     Remarks:
                                                     Because of flattening, set the spring preload on new delivery-valve holders
Control-lever
 position degrees: 5...13
                                                      to 2.9...3.1 mm.
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 5.90
Speed 1/min: 225
C-rod trav.mm : 4.40...4.60
C-rod trav.mm : 2.00
                                                     ADDITIONAL INFORMATION
            1/min : 310...370
Speed
 compensator (LDA, ADA, ALDA)
                                                     Delivery-valve spring pre-tension
                                                      3.2...3.4 mm.
1st version
                                                     Permissible alteration of 3.0...3.5 mm
                                                     Because of flattening, set the spring
Setting
             1/min : 500
                                                     preload on new delivery-valve holders
Speed
            hPa : 900
                                                      to 3.0...3.1 mm.
Contr.-rod trav.mm: 13.00...13.10
Measurement
             1/min : 500
Speed
                                                     Check and set without ROBO diaphragam
1st pressure hPa : -
                   : 11.30...11.40
  C-rod trav.mm
2nd pressure hPa : 350
  C-rod trav.mm : 12.80...12.90
                                                     For comb. with letter index see
3rd pressure hPa : 230
  C-rod trav.mm
                    : 11.90...12.10
                                                     VDT-I-400/116.
FUEL-DELIVERY CHARACTERISTICS
1st version
                                                     For sealing see VDT-I-400/117.
Charge press. hPa : 900
Speed 1/min: 1000
Del.quantity cm3/: 176.0...184.0
1000H.: (174.0...186.0)
Charge press. hPa : -
Speed 1/min : 500
                                                     Scania test specifications taken over
Del.quantity cm3/ : 137.0...141.0
                                                     on Aug. 19, 1983
                                                     Engine firing sequence: 1-5-4-2-6-3-7-8
             1000H.: (135.0...143.0)
```

```
: 1- 2- 7- 3- 4- 5-
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      Cam sequence
                                                                            6- 8
Note inst. in remarks column
                    : SCA 14_2 D
Test sheet
                   : 12.09.86
: 8.84
                                                      SD ang. spacing CS: 0-45-90-135-180-225-
Edition
                                                                            270-315
Superceeded
                                                      Tolerance + - 0
                 : ISO-4113
                                                                          : 0.50 (0.75)
Calibrating oil
                    : 0 402 648 807
                                                      SD mark cyl. no. : 1
Combination no.
Injection pump
                                                      START OF DELIVERY DIFFERENCE
Pump designation : PE8P120A920/4LS7008
EP type number
                   : 0 412 628 803
                                                      betw.c-rod trav.mm: 7.00...13.90
                                                      & c-rod tray max. : 21.00
Difference CS : 1.45...2.15
Governor
Governor design. : RQV200...950PA547-1
Governer no. : 0 421 813 360
                                                      BASIC SETTING
Customer-spec. information
                   : SAAB-SCANIA
                                                                     1/mi: 700
                                                      1st speed
Customer
                    : DSC14 01
                                                      Contr.-rod trav.mm: 13.90...14.00
Engine
                                                      Del.quantity cm3/: 19.7...19.9
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. OC
                                                                    100H.: (19.4...20.2)
                    : 38...42
                                                                    cm3/:0.7
                                                      Dispersion
Overflow valve
                    : 1 417 413 025
                                                                    100H.: (1.0)
                                                      2nd speed 1/min: 225.0
Contr.-rod trav. m: 4.7...4.9
Del.quantity cm3/: 1.4...1.8
Inlet press., bar: 1.50
Calibrating nozzle-holder
                                                                    100H.: (-) cm3/: 0.3
                : 1 688 901 019
 assembly
                                                      Dispersion
                                                                    100H.: (0.6)
Opening
                   : 207...210
 pressure, bar
                                                      (B) Setting of injection pump with
                                                          externally-mounted governor
Perforated-plate
                    : 0,8
 diameter mm
                                                      SLEEVE TRAVELS
                                                      1st speed 1/min: 225
                                                        Sleeve travel mm: 1.30...1.50
                   : 1 680 750 015
Test inj. tubing
                                                                  1/min: 270
                                                      2nd speed
                                                      Sleeve travel mm: 1.90...2.10 3rd speed 1/min: 360
Outside diameter
x Wall thickness
                                                        Sleeve travel mm: 2.60...3.00 th speed 1/min: 990 Sleeve travel mm: 7.80...8.00
                   : 6.00x1.50x600
x Length mm
                                                      4th speed
(A) Injection pump setting values
                                                      5th speed 1/min: 1120
    Insp. values in parentheses
                                                        Sleeve travel mm: 9.40...9.60
    Set constant delivery quant.
    per values ____
                                                      SLEEVE POSITION
START OF DELIVERY
                                                      Control-lever position
Test pressure, bar: 25...27
                                                                   Degree: -1
                                                      Speed 1/min: 1040
Cont.-rod travelmm: 15.20...17.80
                    : 4.50...4.60
Prestroke mm
                    : (4.45...4.65)
Contr.-rod trav.mm: 6.00...8.00
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
G10
```

Charge press. hPa : -1/min : 500 1st version Speed Del.quantity cm3/: 146.0...150.0 1000H.: (144.0...152.0) 1/min: 700 Speed Charge press. hPa : 900 Del.quantity cm3/: 197.0...199.0 1000H.: (194.0...202.0) Dispersion cm3/: 7.00 STARTING FUEL DELIVERY 1000H.: (10.00) HIGHEST RATED SPEED 1/min : 100 Speed Del.quantity cm3/: 240.0...290.0 1st version 1000H.: (-) Control-lever Contr.-rod trav.mm: 20.00...21.00 position degrees: 56...64 Testing: LOW IDLE 1st c-rod trav.mm : 12.90 Speed 1/min: 990...1000 1/min : 225 Speed 2nd c-rod trav.mm : 4.00 Contr.-rod trav.mm: 4.70...4.90 1/min : 1110...1140 Del.quantity cm3/ : 14.0...18.0 Speed 1000H.: (-) cm3/: 3.00 4th speed 1/min : 1250 C-rod trav.mm : 0.00...1.00 Dispersion 1000H.: (6.00) LOWEST RATED SPEED I Control-lever Remarks: Because of flattening, set the spring position degrees: 6...14 preload on new delivery-valve holders to 2.9...3.1 mm. Testing: 1/min : 100 Speed C-rod trav.mm min : 6.20 1/min : 225 Speed C-rod trav.mm : 4.70...4.90 .mm : 2.00 1/min : 330...390 C-rod trav.mm ADDITIONAL INFORMATION Speed compensator (LDA,ADA,ALDA) Delivery-valve spring pre-tension 3.2...3.4 mm. 1st version Permissible alteration of 3.0...3.5 mm Setting Because of flattening, set the spring 1/min : 500 Speed hPa : 900 preload on new delivery-valve holders Pressure Contr.-rod trav.mm: 13.90...14.00 to 3.0...3.1 mm. Measurement Speed 1/min : 500 Check and set without ROBO diaphragam 1st pressure hPa : 11.00...11.10 C-rod trav.mm 2nd pressure hPa : 335 C-rod trav.mm : 13.10...13.20 3rd pressure hPa : 215 C-rod trav.mm : 11.60...11.80 For comb. with letter index see VDT-I-400/116. FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900 Speed 1/min : 950 For sealing see VDT-I-400/117. Del.quantity cm3/: 190.0...198.0 1000H.: (188.0...200.0) G19

Scania test specifications taken over on Aug. 19, 1983 Engine firing sequence: 1-5-4-2-6-3-7-8

Start of delivery - engine: 22° before TDC at control-rod travel = 6.0... 8.0 mm

```
: 1- 2- 7- 3- 4- 5-
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                   Cam sequence
                                                                         6- 8
Note inst. in remarks column
                   : SCA 14,2 D1
Test sheet
                                                   SD ang. spacing CS: 0-45-90-135-180-225-
Edition
                   : 12.09.86
                   : 5.85
                                                                         270-315
Superceeded
                                                   Tolerance + - 0
Calibrating oil
                  : ISO-4113
                                                                       : 0.50 (0.75)
Combination no.
                   : 0 402 648 811
                                                    SD mark cyl. no. : 1
                                                    START OF DELIVERY DIFFERENCE
Injection pump
Pump designation : PE8P120A920/4L87008
EP type number
                  : 0 412 628 803
                                                   betw.c-rod trav.mm: 7.00...13.90
                                                   & c-rod tray max. : 21.00
Difference CS : 1.45...2.15
Governor
Governor design.
Governer no.
                  : RQV275...950PA547-4
                   : 0 421 813 435
                                                   BASIC SETTING
Customer-spec. information
                  : SAAB-SCANIA
                                                                 1/mi: 700
Customer
                                                    1st speed
Engine
                   : DSC14 06
                                                    Contr.-rod trav.mm: 13.90...14.00
TEST BENCH REQUIREMENTS
                                                   Del.quantity cm3/: 19.7...19.9
Calibrating-oil inlet temp. °C
                                                                 100H.: (19.4...20.2)
                   : 38...42
                                                                 cm3/:0.7
                                                   Dispersion
Overflow valve
                   : 1 417 413 025
                                                                 100H.: (1.0)
                                                                 1/min: 275.0
Inlet press., bar : 1.50
                                                   2nd speed
                                                   Contr.-rod trav. m: 4.7...4.9
Del.quantity cm3/: -
Calibrating nozzle-holder
                : 1 688 901 019
                                                                 100H.: (-)
assembly
                                                                 cm3/:0.3
                                                   Dispersion
                                                                 100H.: (0.6)
Opening
                   : 207...210
pressure, bar
                                                    (B) Setting of injection pump with
                                                        externally-mounted governor
Perforated-plate
diameter mm
                   : 0.8
                                                   SLEEVE TRAVELS
                                                    1st speed 1/min: 275
                                                     Sleeve travel mm: 1.90...2.10
                  : 1 680 750 015
Test inj. tubing
                                                    2nd speed 1/min: 430
                                                     Sleeve travel mm: 3.70...4.00 d speed 1/min: 500
Outside diameter
                                                   3rd speed
x Wall thickness
                                                     Sleeve travel mm: 4.80...5.00
                  : 6.00x1.50x600
x Length mm
                                                     th speed 1/min: 1000
Sleeve travel mm: 7.60...7.80
                                                    4th speed
(A) Injection pump setting values
                                                   5th speed 1/min: 1180
    Insp. values in parentheses
                                                     Sleeve travel mm: 9.20...9.40
    Set constant delivery quant.
    per values
                                                   SLEEVE POSITION
                                                   Control-lever position
START OF DELIVERY
Test pressure, bar: 25...27
                                                                Degree: -1
                                                                 1/min: 1100
                                                   Speed
                   : 4.50...4.60
                                                   Cont.-rod travelmm: 15.20...17.80
Prestroke 800
                   : (4.45...4.65)
Contr.-rod trav.mm: 6.00...8.00
                                                   FULL-LOAD DELIV. AT FULL-LOAD STOP
G13
```

Charge press. hPa : : 1/min : 500 1st version Speed Del.quantity cm3/: 146.0...150.0 Speed 1/min: 700 Charge press. hPa : 900 1000H.: (144.0...152.0) Del.quantity cm3/: 197.0...199.0 1000H.: (194.0...202.0) Dispersion cm3/: 7.00 STARTING FUEL DELIVERY 1000H.: (10.00) HIGHEST RATED SPEED Speed 1/min : 100 Del.quantity cm3/: 240.0...290.0 1st version Control-lever 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 position degrees: 55...63 LOW IDLE Testing: 1st c-rod trav.mm : 12.90 Speed 1/min: 990...1000 1/min : 275 Speed Contr.-rod trav.mm: 4.70...4.90 Dispersion cm3/: 3.00 2nd c-rod trav.mm : 4.00 1/min : 1170...1200 Speed 1/min : 1300 4th speed 1000H.: (6.00) C-rod trav.mm : 0.00...1.00 Remarks: LOWEST RATED SPEED I Because of flattening, set the spring Control-lever preload on new delivery-valve holders position degrees: 5...13 to 2.9...3.1 mm. Testing: 1/min : 100 Speed C-rod trav.mm min : 6.20 Speed 1/min : 275 ADDITIONAL INFORMATION C-rod trav.mm : 4.70...4.90 mm : 2.00 1/min : 330...390 C-rod trav.mm Speed compensator (LDA,ADA,ALDA) Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring 1st version preload on new delivery-valve holders Setting 1/min : 500 to 3.0...3.1 mm. Speed hPa : 900 Pressure Contr.-rod trav.mm: 13.90...14.00 Measurement 1/min : 500 Check and set without ROBO diaphragam Speed 1st pressure hPa : -C-rod trav.mm : 11.00...11.10 2nd pressure hPa : 335 C-rod trav.mm : 13.10...13.20 For comb. with letter index see 3rd pressure hPa : 215 VDT-I-400/116. C-rod trav.mm : 11.60...11.80 FUEL-DELIVERY CHARACTERISTICS For sealing see VDT-I-400/117. 1st version Charge press. hPa : 900 1/min : 950 Speed Del.quantity cm3/: 190.0...198.0 1000H.: (188.0...200.0)

G14

Scania test specifications taken over on Nov. 2, 1983
Start of delivery - engine: 22° before TDC at control-rod travel = 6.0...
8.0 mm
Engine firing sequence: 1-5-4-2-6-3-7-8

```
: 1- 2- 7- 3- 4- 5-
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                       Cam sequence
                                                                             6- 8
Note inst. in remarks column
Test sheet
                    : SCA 14,2 D2
                                                       SD ang. spacing CS: 0-45-90-135-180-225-
                    : 12.09.86
Edition
Superceeded
                    : 4.86
                                                                             270-315
                                                       Tolerance + - 0
                                                                           : 0.50 (0.75)
Calibrating oil
                   : ISO-4113
                    : 0 402 648 815
Combination no.
                                                       SD mark cyl. no. : 1
Injection pump
                                                       START OF DELIVERY DIFFERENCE
Pump designation : PEBP120A920/4LS7008X
                                                      betw.c-rod trav.mm: 7.00...12.80 & c-rod trav max. : 21.00 Difference CS : 1.05...1.75
EP type number
                   : 0 412 628 812
Governor
Governor design. : RQV200...950PA547-6
Governer no.
                   : 0 421 813 499
                                                       BASIC SETTING
Customer-spec. information
Customer
                   : SAAB-SCANIA
                                                       1st speed
                                                                      1/mi: 700
                    : DSC14 02
                                                       Contr.-rod trav.mm: 12.80...12.90
Engine
                                                       Del.quantity cm3/: 18.3...18.5
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. OC
                                                                     100H.: (18.0...18.8)
                    : 38...42
                                                       Dispersion
                                                                     cm3/:0.7
Overflow valve
                    : 1 417 413 025
                                                                     100H.: (1.0)
Inlet press., bar: 1.50
                                                       2nd speed
                                                                     1/min: 225.0
                                                      Contr.-rod trav. m: 4.7...4.9
Del.quantity cm3/: 1.4...1.8
Calibrating nozzle-holder
                                                                     100H.: (-) cm3/: 0.3
                : 1 688 901 019
 assembly
                                                      Dispersion
                                                                     100H.: (0.6)
Opening
                   : 207...210
 pressure, bar
                                                       (B) Setting of injection pump with
                                                           externally-mounted governor
Perforated-plate
 diameter mm
                    : 0,8
                                                       SLEEVE TRAVELS
                                                       1st speed 1/min: 225
Sleeve travel mm: 1.30...1.40
Test inj. tubing : 1 680 750 015
                                                       2nd speed 1/min: 260
                                                         Sleeve travel mm: 1.70...1.90
Outside diameter
                                                       3rd speed 1/min: 360
x Wall thickness
                                                        Sleeve travel mm: 2.60...3.00 th speed 1/inin: 1000 Sleeve travel mm: 7.90...9.00
x Length mm
                 : 6.00x1.50x600
                                                       4th speed
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       5th speed 1/min: 1110
                                                        Sleeve travel mm: 9.30...9.50
    per values ____
                                                       SLEEVE POSITION
START OF DELIVERY
                                                       Control-lever position
Test pressure, bar: 25...27
                                                                    Degree: -1
                                                      Speed 1/min: 1040
Cont.-rod travelmm: 15.20...17.80
                    : 4.50...4.60
Prestroke mm
                    : (4.45...4.65)
Contr.-rod trav.mm: 6.00...8.00
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
G16
```

```
Del.quantity cm3/: 146.0...150.0
                                                                1000H.: (144.0...152.0)
1st version
Speed
             1/min: 700
Charge press. hPa : 900
Del.quantity cm3/: 183.0...185.0
1000H.: (180.0...188.0)
Dispersion cm3/: 7.00
                                                   STARTING FUEL DELIVERY
            1000H.: (10.00)
                                                                1/min : 100
                                                   Speed
                                                   Del.quantity cm3/: 240.0...290.0
                                                                1000H.: (-)
HIGHEST RATED SPEED
                                                   Contr.-rod trav.mm: 20.00...21.00
1st version
Control-lever
 position degrees: 55...63
                                                   LOW IDLE
Testing:
                                                   Speed
                                                                1/min : 225
                                                   Contr.-rod trav.mm: 4.70...4.90
1st c-rod trav.mm : 11.80
                                                   Del.quantity cm3/: 14.0...18.0
1000H.: (-)
Dispersion cm3/: 3.00
  Speed 1/min: 990...1000
2nd c-rod trav.mm : 4.00
                                         Dispersion
           1/min : 1090...1120
  Speed
                                                                1000H.: (6.00)
4th speed 1/min : 1250
  C-rod trav.mm : 0.00...1.00
                                                   Remarks:
LOWEST RATED SPEED I
                                                   Because of flattening, set the spring
Control-lever
                                                   preload on new delivery-valve holders
                                                   to 2.9...3.1 mm.
 position degrees: 6...14
Testing:
           1/min : 100
Speed
C-rod trav.mm min : 6.20 Speed 1/min : 225
                                                   ADDITIONAL INFORMATION
C-rod trav.mm : 4.70...4.90
C-rod trav.mm
                   : 2.00
           1/min : 330...390
Speed
 compensator (LDA_ADA_ALDA)
                                                   Delivery-valve spring pre-tension
                                                   3.2...3.4 mm.
                                                   Permissible alteration of 3.0...3.5 mm
                                                   Because of flattening, set the spring
1st version
                                                   preload on new delivery-valve holders
Setting
            1/min : 500
                                                   to 3.0...3.1 mm.
Speed
            hPa : 900
Pressure
Contr.-rod trav.mm: 12.80...12.90
Measurement
            1/min : 500
                                                   Check and set without ROBO diaphragam
Speed
1st pressure hPa
  C-rod trav.mm
                   : 11.00...11.10
3rd pressure hPa : ?
                                                   For comb. with letter index see
  C-rod trav.mm
                   : 11.60...11.80
                                                   VDT-I-400/116.
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 900
            1/min : 950
                                                   For sealing see VDT-I-400/117.
Speed
Del.quantity cm3/: 177.0...185.0
            1000H.: (175.0...187.0)
Change press. hPa : -
            1/min : 500
Speed
G17
```

Scania test specifications taken over on May 3, 1985 Start of delivery - engine: 22° before TDC at control-rod travel = 6.0... 8.0 mm Engine firing sequence: 1-5-4-2-6-3-7-8 

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                         : 4.40...4.50
                                                     Prestroke mm
                                                                         : (4.35...4.55)
Note inst. in remarks column
                                                     Contr.-rod trav.mm: 9.00...12.00
                                                     Cam sequence : 1-5-3-6-2-
Test sheet
                   : SCA 11.0 U4
: 05.06.87
Edition
                   : 11.84
Superceeded
                                                     SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Calibrating oil : ISO-4113
Combination no.
                   : 0 402 676 800
                                                     SD mark cyl. no. : 1
Injection pump
Pump designation : PE6P120A720RS7001
                                                     BASIC SETTING
EP type number
                   : 0 412 626 800
                                                                    1/mi: 700
Governor
                                                     1st speed
Governor design. : RSV350...1100P1/481
Governer no. : 0 421 833 121
                                                     Contr.-rod trav.mm: 13.20...13.30
                                                     Del.quantity cm3/: 19.9...20.1
Customer-spec. information
Customer
                   : SAAB-SCANIA
                                                                   100H.: (19.6...20.4)
TEST BENCH REQUIREMENTS
                                                                   cm3/:0.6
                                                     Dispersion
Calibrating-oil inlet temp. °C
                   : 38...42
                                                                   100H.: (0.9)
Overflow valve
                                                                   1/min: 350.0
                                                     2nd speed
                    : 1 417 413 025
                                                     Contr.-rod trav. m: 4.4...4.6
Del.quantity cm3/: 1.3...1.7
                                                                   100H.: (-)
cm3/: 0.3
100H.: (0.6)
Inlet press., bar : 1.50
                                                     Dispersion
Calibrating nozzle-holder
              : 1 688 901 019
 assembly
                                                     SLEEVE POSITION
Opening
                                                     Control-lever position
                   : 207...210
                                                                  Degree: -3
 pressure, bar
                                                                   17min: 800
                                                     Speed
                                                     Cont.-rod travelmm: 0.30...1.00
Perforated-plate
                   : 0,8
 diameter mm
                                                     Governor-spring reload
                                                     Notch setting x : 6.00
                   : 1 680 750 015
Test inj. tubing
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
Outside diameter
x Wall thickness
                                                     1st version
x Length mm
                   : 6.00x1.50x600
                                                                   1/min: 700
                                                     Speed
                                                     Del.quantity cm3/: 199.0...201.0
1000H.: (196.0...204.0)
Dispersion cm3/: 6.00
(A) Injection pump setting values
    Insp. values in parentheses
    Set constant delivery quant.
                                                                  1000H.: (9.00)
    per values ____
                                                     HIGHEST RATED SPEED
START OF DELIVERY
                                                     1st version
Test pressure, bar: 25...27
                                                     Control-lever
Date of mfg.
                 : 141
                                                      position degrees: 62...70
                   : 5.00...5.10
                                                     Testing:
Prestroke mm
                   : (4.95...5.15)
                                                     1st c-rod trav.mm : 12.20
Contr.-rod trav.mm: 9.00...12.00
                                                       Speed 1/min: 1090...1100
                                                     2nd c-rod trav.mm : 4.00
Date of mfg.
                   : < 052
G19
```

```
Speed
             1/min : 1170...1200
4th speed 1/min : 1300
  C-rod trav.mm : 0.30...1.70
LOWEST RATED SPEED I
Control-lever
 position degrees: 27...35
Setting point w/out aux. spring
             1/min : 350
Speed
Contr.-rod trav.mm: 4.0
             1/min : 350
Speed
C-rod trav.mm : 3.90...4.10
C-rod trav.mm : 2.00
            1/min : 440...500
Speed
FUEL-DELIVERY CHARACTERISTICS
             1/min : 1000
Speed
Del.quantity cm3/: 193.0...201.0
             1000H.: (190.0...204.0)
STARTING FUEL DELIVERY
             1/min : 100
Speed
Del.quantity cm3/: 240.0...290.0
             1000H.: (-)
Contr.-rod trav.mm: 20.00...21.00
LOW IDLE
Speed
             1/min : 350
Contr.-rod trav.mm: 4.40...4.60
Del.quantity cm3/: 13.0...17.0
1000H.: (-)
Dispersion cm3/: 3.00
1000H.: (6.00)
Remarks:
                    : DS11 40, 41, 42
: DSI11 40, 44
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
ADDITIONAL INFORMATION
Check and set without ROBO diaphragam
For comb. with letter index see
VDT-1-400/116.
```

For sealing see VDT-I-400/117.

Scania test specifications taken over on Aug. 18, 1983 Start of delivery on engine.

Engine model DS 11 - 17° before top dead center.

Engine model DSI 11 - 16° before top dead center.

Firing sequence of engine: 1-5-3-6-2-4.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                          : 1-5- 3- 6- 2- 4
                                                      Cam sequence
Note inst. in remarks column
                    : SCA 9,0 A
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Test sheet
                   : 15.05.87
: 3.86
Edition
Superceeded
Calibrating oil
                   : ISO-4113
                                                      SD mark cyl. nö. : 1
Combination no.
                    : 0 402 746 800
                                                      BASIC SETTING
Injection pump
                                                                     1/mi: 700
                                                      1st speed
Pump designation : PE6P120A320RS7102
EP type number
                    : 0 412 626 804
                                                      Contr.-rod trav.mm: 12.00...12.10
Governor
Governor design. : RQV200...1100PA712-1
                                                      Del.quantity cm3/: 16.3...16.5
Governer no.
                   : 0 421 813 448
                                                                    100H.: (16.0...16.8)
Customer-spec. information
Customer
                   : SCANIA
                                                      Dispersion
                                                                    cm3/:0.6
                    : DS9 01
                                                                    100H.: (0.9)
Engine
TEST BENCH REQUIREMENTS
                                                                    1/min: 225.0
                                                      2nd speed
                                                      Contr.-rod tray. m: 4.6...5.2
Calibrating-oil inlet temp. OC
                                                      Del.quantity cm3/: 1.5...1.9
                                                                    100H.: (1.3...2.1)
                    : 38...42
                                                                    cm3/:0.3
                                                      Dispersion
Overflow valve
                                                                    100H.: (0.6)
                    : 1 417 413 025
                                                      (B) Setting of injection pump with
Inlet press., bar : 1.50
                                                          externally-mounted governor
                                                      SLEEVE TRAVELS
Calibrating nozzle-holder
                 : 1 688 901 019
                                                      1st speed 1/min: 225
 assembly
                                                        Sleeve travel mm: 1.10...1.50
                                                      2nd speed 1/min: 350
Opening
                                                      Sleeve travel mm: 2.60...3.20
3rd speed 1/min: 700
Sleeve travel mm: 4.50...5.10
                   : 207...210
 pressure, bar
Perforated-plate
                                                      4th speed 1/min: 1145
Sleeve travel mm: 7.50...7.70
 diameter mm
                    : 0,8
                                                      5th speed 1/min: 1290
Test inj. tubing : 1 680 750 015
                                                        Sleeve travel mm: 8.80...9.20
Outside diameter
                                                      SLEEVE POSITION
                                                      Control-lever position
x Wall thickness
                                                                   Degree: -1
1/min: 1160
                 : 6.00x1.50x600
x Length mm
                                                      Speed
                                                      Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values ____
                                                      1st version
                                                                    1/min: 700
START OF DELIVERY
                                                      Speed
                                                      Charge press. hPa : 900
Del.quantity cm3/ : 163.0...165.0
Test pressure, bar: 25...27
                                                                   1000H.: (160.0...168.0)
Prestroke mm
                    : 5.00...5.10
                                                      Dispersion cm3/: 6.00
1000H.: (9.00)
                    : (4.95...5.15)
Contr.-rod trav.mm: 9.00...12.00
G21
```

HIGHEST RATED SPEED STARTING FUEL DELIVERY 1st version Control-lever position degrees: 54...62 Speed 1/min : 100 Del.quantity cm3/: 240.0...290.0 1000H.: (236.0...294.0) Testing: Contr.-rod trav.mm: 20.00...21.00 1st c-rod trav.mm : 11.00 1/min : 1140...1150 Speed 2nd c-rod trav.mm : 4.00 LOW IDLE Speed 1/min: 1275...1305 th speed 1/min: 1400 C-rod trav.mm: 0.00...1.00 4th speed Speed 1/min : 225 Contr.-rod trav.mm: 4.60...5.20 Del.quantity cm3/: 15.0...19.0 1000H.: (13.0...21.0) Dispersion cm3/: 3.00 LOWEST RATED SPEED I Control-lever 1000H.: (6.00) position degrees: 6...14 Remarks: Testing: Because of flattening, set the spring preload on new delivery-valve holders 1/min : 100 Speed C-rod trav.mm min : 6.30 to 2.9...3.1 mm. 1/min : 225 Speed : 4.60...5.20 : 2.00 C-rod trav.mm C-rod trav.mm 1/min : 300...360 Speed CONSTANT REGULATION ADDITIONAL INFORMATION 1/min : 225...365 Speed compensator (LDA,ADA,ALDA) Delivery-valve spring pre-tension 3.2...3.4 mm. 1st version Setting Permissible alteration of 3.0...3.5 mm Speed Because of flattening, set the spring 1/min : 500 hPa : 900 preload on new delivery-valve holders Pressure Contr.-rod trav.mm: 12.00...12.10 to 3.0...3.1 mm. Measurement Speed 1/min : 500 Check and set without ROBO diaphragam 1st pressure hPa : 11.15...11.55 C-rod trav.mm : 420 2nd pressure hPa : 11.70...11.80 C-rod trav.mm : 380 3rd pressure hPa C-rod trav.mm : 11.50...11.70 for comb. with letter index see VDT-I-400/116. FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900 1/min : 1100 For sealing see VDT-I-400/117. Speed Del.quantity cm3/: 160.9...168.0 1000H.: (158.0...170.0) Charge press. hPa : -Speed 1/min : 500 Del.quantity cm3/ : 141.0...145.0 Scania test specifications taken over 1000H.: (139.0...147.0) on Oct. 4, 1984 Start of delivery - engine: 15° before

TDC
Firing sequence of engine:
1-5-3-6-2-4.

```
: 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                        Cam sequence
Note inst. in remarks column
Test sheet
                                                        SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                    : SCA 9,0 C
Edition
                    : 15.05.87
Superceeded
                    : 12.85
                    : ISO-4113
Calibrating oil
                                                        SD mark cyl. no. : 1
                    : 0 402 746 801
Combination no.
                                                        START OF DELIVERY DIFFERENCE
Injection pump
                                                        betw.c-rod trav.mm: 7.00...12.50
                                                        & c-rod tray max. : 21.00
Difference OCS : 1.00...1.70
                    : PE6P12OA32ORS7103
Pump designation
EP type number
                    : 0 412 626 805
Governor
Governor design. : RQV200...1100PA712
                                                        BASIC SETTING
Governer no.
                    : 0 421 813 442
                                                                        1/mi: 700
                                                        1st speed
Customer-spec. information
                                                        Contr.-rod trav.mm: 12.50...12.60
Customer
                    : SAAB-SCANIA
                     : DSC 9 01
                                                        Del.quantity cm3/: 17.8...18.0
Engine
TEST BENCH REQUIREMENTS
                                                                       100H.: (17.5...18.3)
Calibrating-oil inlet temp. OC
                                                        Dispersion
                                                                       cm3/:0.7
                     : 38...42
                                                                       100H.: (1.0)
Overflow valve
                     : 1 417 413 025
                                                                       1/min: 225.0
                                                        2nd speed
                                                        Contr.-rod trav. m: 4.4...5.0
                                                        Del.quantity cm3/: 1.5...1.9
Inlet press., bar : 1.50
                                                                       100H.: (1.3...2.1)
                                                                       cm3/: 0.3
Calibrating nozzle-holder
                                                        Dispersion
                                                                       100H.: (0.6)
 assembly
               : 1 688 901 019
                                                        (B) Setting of injection pump with
Opening
                    : 207...210
                                                             externally-mounted governor
 pressure, bar
                                                        SLEEVE TRAVELS
Perforated-plate
                     : 0,8
 diameter mm
                                                        1st speed 1/min: 225
                                                        Sleeve travel mm: 1.10...1.50
2nd speed 1/min: 350
                                                        Steeve travel mm: 2.60...3.20

3rd speed 1/min: 700

Steeve travel mm: 4.50...5.10

4th speed 1/min: 1145

Steeve travel mm: 7.50...7.70
Test inj. tubing
                   : 1 680 750 015
Outside diameter
x Wall thickness
                    : 6.00x1.50x600
x Length mm
                                                        5th speed 1/min: 1300
Sleeve travel mm: 8.90...9.30
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                        SLEEVE POSITION
    per values ____
                                                        Control-lever position
                                                        Degree: -1
Speed 1/min: 1150
Cont.-rod travelmm: 15.20...17.80
START OF DELIVERY
Test pressure, bar: 25...27
                                                        FULL-LOAD DELIV. AT FULL-LOAD STOP
Prestroke mm
                     : 4.50...4.60
                    : (4.45...4.65)
Contr.-rod trav.mm: 6.00...8.00
                                                        1st version
G24
```

Speed 1/min: 700 Charge press. hPa: 900 Del.quantity cm3/: 178.0...180.0 1000H.: (175.0...183.0) Dispersion cm3/: 7.00 1/min : 500 Speed Del.quantity cm3/: 138.0...142.0 1000H.: (136.0...144.0) 1000H.: (10.00) STARTING FUEL DELIVERY HIGHEST RATED SPEED 1st version Speed 1/min : 100 Del.quantity cm3/: 240.0...290.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 Control-lever position degrees: 55...63 Testing: 1st c-rod trav.mm : 11.50 LOW IDLE Speed 1/min: 1140...1150 2nd c-rod trav.mm: 4.00 1/min : 225 Speed 1/min : 1285...1315 Contr.-rod trav.mm: 4.40...5.00 Speed 4th speed 1/min: 1400 Del.quantity cm3/: 15.0...19.0 1000H.: (13.0...21.0) cm3/: 3.00 1000H.: (6.00) C-rod trav.mm : 0.00...1.00 Dispersion LOWEST RATED SPEED I Control-lever position degrees: 6...14 Remarks: Because of flattening, set the spring Testing: preload on new delivery-valve holders 1/min : 125 to 2.9...3.1 mm. Speed C-rod trav.mm min : 6.10 Speed 1/min : 225 : 4.40...5.00 C-rod trav.mm CONSTANT REGULATION ADDITIONAL INFORMATION 1/min : 225...365 Speed compensator (LDA,ADA,ALDA) Delivery-valve spring pre-tension 3.2...3.4 mm. 1st version Setting Permissible alteration of 3.0...3.5 mm 1/min : 500 Because of flattening, set the spring Speed hPa : 900 Pressure preload on new delivery-valve holders Contr.-rod trav.mm: 12.50...12.60 to 3.0...3.1 mm. Measurement Speed 1/min: 500 Check and set without ROBO diaphragam 1st pressure hPa : -: 10.10...10.50 C-rod trav.mm 2nd pressure hPa : 435 : 11.90...12.00 C-rod trav.mm 3rd pressure hPa : 335 C-rod trav.mm : 10.60...10.80 For comb. with letter index see VDT-I-400/116. FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900 1/min : 1100 Scania test specifications taken over Speed Del.quantity cm3/: 177.0...185.0 1000H.: (175.0...187.0) on Oct. 4, 1984 Start of delivery - engine: 18° before TDC at control-rod travel = Charge press. hPa : -**G25** 

6.00...8.00 mm
Firing sequence of engine:
1-5-3-6-2-4.

```
Cam sequence : 1- 3- 4- 2
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
Tesit sheet
                                                      SD ang. spacing CS: 0-90-180-270 Tolerance + - : 0.50 (0.75)
                   : MB 5,7 A 14
                   : 10.04.87
Edition
Superceeded
                   : 11.85
                  : ISO-4113
Calibrating oil
                                                      BASIC SETTING
Combination no.
                   : 0 403 444 110
                                                      1st speed
                                                                 1/mi: 1300
                                                      Contr.-rod trav.mm: 11.10...11.20
Injection pump
Pump designation : PES4MW100/720R$1127
EP type number
                   : 0 413 404 103
                                                      Del.quantity cm3/: 8.5...8.7
Governor
Governor design. : RQV300...1300MW48-1
Governor no. : 0 420 083 084
                                                                    100H.: (8.3...8.9)
                                                                    cm3/: 0.35
                                                      Dispersion
                                                                               _____
Customer-spec. information
Customer
                                                                    100H.: (0.6)
                                                     2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.8...7.9
Engine
                   : OM 364 A
                                                      Del.quantity cm3/: 1.0...1.4
1st version kW : 85.0
                                                                    100H.: (0.8...1.6)
cm3/: 0.35
100H.: (0.5)
Speed
              1/min: 2600
                                                      Dispersion
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                                                      SLEEVE POSITION
                    : 38...42
                                                      Control-lever position
                                                                   Degree: -1
                                                                    17min: 1330
Overflow valve
                                                      Speed
                    : 1 417 413 000
                                                      Cont.-rod travelmm: 15.20...17.80
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
Inlet press., bar : 1.50
Calibrating nozzle-holder
                                                      1st version
                 : 0 681 343 009
                                                                    1/min: 1300
 assembly
                                                      Speed
                                                     Del.quantity cm3/: 85.0...87.0
1000H.: (83.0...89.0)
Opening
                                                                  cm3/ : 3.50
pressure, bar : 172...175
                                                      Dispersion
                                                                   1000H.: (6.00)
                                                     HIGHEST RATED SPEED
                   : 1 680 750 008
Test inj. tubing
                                                      1st version
Outside diameter
                                                     Control-lever
x Wall thickness
                                                      position degrees: 50...58
                   : 6.00x2.00x600
x Length mm
                                                      Testing:
                                                     1st c-rod trav.mm : 10.10
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       Speed 1/min: 1340...1350
                                                     2nd c-rod trav.mm: 4.00
Speed 1/min: 1430...1460
4th speed 1/min: 1550
    per values
START OF DELIVERY
                                                       C-rod trav.mm • 9.00...1.00
Test pressure, bar: 30...32
                                                     LOWEST RATED SPEED I
                    : 3.70...3.80
                                                     Control-lever
Prestroke mm
                                                      position degrees: 17...25
                   : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
                                                     Setting point w/out aux. spring
G27
```

```
Speed
              1/min : 300
Contr.-rod trav.mm: 7.85
Testing:
               1/min : 100
Speed
C-rod trav.mm min: 9.50
Speed 1/min: 300
C-rod trav.mm: 7.80...7.90
C-rod trav.mm
CONSTANT REGULATION
               1/min: 330...600
Speed
TORQUE CONTROL
Torque-control curve - 1st version
              1/min : 1300
1st speed
C-rod trav.mm : 11.10...11.20
2nd speed 1/min : 750
                       : 11.90...12.10
  C-rod trav.mm
3rd speed 1/min : 585
C-rod trav.mm : 12.10...12.30
4th speed 1/min : 1000 : C-rod trav.mm : 11.10...11.30
SWITCH-OVER POINT
               1/min : 230 (250)
Speed
FUEL-DELIVERY CHARACTERISTICS
               1/min : 750
Speed
Del.quantity cm3/: 84.5...86.5
1000H.: (82.5...88.5)
Dispersion cm3/: 5.00
               1000H.: (7.00)
1/min : 585
Speed
Del.quantity cm3/: 80.5...83.5
               1000H.: (78.5...86.5)
               cm3/: 5.00
1000H.: 7.00
Dispersion
STARTING FUEL DELIVERY
               1/min : 100
Speed
Del.quantity cm3/: 80.0...90.0
1000H.: (77.0...93.0)
LOW IDLE
Speed
               1/min : 300
Contr.-rod trav.mm: 7.80...7.90
Del.quantity cm3/: 10.0...14.0
               1000H.: (8.0...16.0)
cm3/: 3.50
1000H.: (5.50)
Dispersion
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                       Cam sequence : 1- 3- 4- 2
Note inst. in remarks column
                                                       SD ang. spacing CS: 0-90-180-270 Tolerance + - : 0.50 (0.75)
                    : MB 5.7 A 19
: 10.04.87
Test sheet
Edition
Superceeded
                                                       BASIC SETTING
                   : ISO-4113
Calibrating oil
                    : 0 403 444 112
Combination no.
                                                                     1/mi: 1300
                                                       1st speed
                                                       Contr.-rod trav.mm: 11.10...11.20
Injection pump
Pump designation : PES4MW100/720RS1127
                    : 0 413 404 103
                                                       Del.quantity cm3/: 8.5...8.7
EP type number
Governor
Governor design. : RQV300...1300MW48-2
                                                                      100H.: (8.3...8.9)
Governer no. : 0 420 083 110
                                                       Dispersion
                                                                      cm3/: 0.35
Customer-spec. information
                                                                      100H.: (0.6)
Customer
                                                       2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/: 1.0...1.4

100H: (0.8...1.6)

Dispersion cm3/: 0.35
Engine
                    : OM 364 A
1st version kW : 85.0
              1/min: 2600
Speed
                                                                      100H.: (0.5)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                                                       SLEEVE POSITION
                    : 38...42
                                                       Control-lever position
                                                       Degree: -1
Speed 1/min: 1330
Cont.-rod travelmm: 15.20...17.80
Overflow valve
                    : 1 417 413 000
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
Inlet press., bar: 1.50
Calibrating nozzle-holder
                                                       1st version
                 : 0 681 343 009
                                                                      1/min: 1300
 assembly
                                                       Speed
                                                       Del.quantity cm3/: 85.0...87.0
1000H:: (83.0...89.0)
Dispersion cm3/: 3.50
Opening
pressure, bar
                   : 172...175
                                                                     1000H.: (6.00)
                    : 1 680 750 008
                                                       HIGHEST RATED SPEED
Test inj. tubing
                                                       1st version
                                                       Control-lever
Outside diameter
x Wall thickness
                                                        position degrees: 50...58
                   : 6.00x2.00x600
x Length mm
                                                       Testing:
(A) Injection pump setting values
                                                       1st c-rod trav.mm : 10.10
                                                                                                  ___
    Insp. values in parentheses
Set constant delivery quant.
                                                          Speed 1/min: 1340...1350
                                                       2nd c-rod trav.mm : 4.00
                                                         Speed 1/min: 1430...1460
    per values ____
                                                       4th speed 1/min: 1550
                                                         C-rod trav.mm : 0.00...1.00
START OF DELIVERY
Test pressure, bar: 30...32
                                                       LOWEST RATED SPEED I
                    : 3.70...3.80
                                                       Control-lever
Prestroke mm
                                                        position degrees: 17...25
                    : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
                                                       Setting point w/out aux. spring
```

**HO1** 

```
Speed
             1/min : 300
Contr.-rod trav.mm: 7.85
Testing:
             1/min : 100
Speed
C-rod trav.mm min: 9.50
Speed 1/min: 300
                   : 7.80...7.90
C-rod trav.mm
CONSTANT REGULATION
Speed
             1/min : 330...600
TORQUE CONTROL
Torque-control curve - 1st version
            1/min : 1300
1st speed
                  : 11.10...11.20
  C-rod trav.mm
             1/min : 750
2nd speed
  C-rod trav.mm : 11.80...12.10
3rd speed 1/min: 585
  C-rod trav.mm : 12.10...12.30
4th speed 1/min : 1000
  C-rod trav.mm : 11.10...11.30
SWITCH-OVER POINT
Speed
             1/min : 230 (250)
FUEL-DELIVERY CHARACTERISTICS
             1/min : 750
Speed
Del.quantity cm3/: 84.5...86.5
1000H.: (82.5...88.5)
Dispersion cm3/: 5.00
1000H.: (7.00)
Speed 17.17min: 585
Del.quantity cm3/: 80.5...83.5
             1000H.: (78.5...86.5)
              cm3/:5.00
Dispersion
              1000H.: 7.00
STARTING FUEL DELIVERY
             1, min : 100
Speed
Del.quantity cm3/: 80.0...90.0
             1000H.: (77.0...93.0)
LOW IDLE
Speed 1/min: 300
Contr.-rod trav.mm: 7:80...7.90
Del.quantity cm3/ : 10.0...14.0
             1000H.: (8.0...16.0)
              cm3/: 3.50
Dispersion
             1000H.: (5.50)
Remarks:
```

H<sub>0</sub>2

Cam sequence : 1- 3- 4- 2 BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column SD ang. spacing CS: 0-90-180-270 Tolerance + - : 0.50 (0.75) : MB 5.7 A 20 : 02.06.87 Test sheet Edition Superceeded : ISO-4113 BASIC SETTING Calibrating oil Combination no. : 0 403 444 113 1st speed 1/mi: 1300 Injection pump Contr.-rod trav.mm: 12.60...12.70 Pump designation : PES4MW100/720RS1151 Del.quantity cm3/: 9.8...10.0 EP type number : 0 413 404 104 Governor 100H.: (9.6...10.2) Governor design.: RQV300...1300MW50-3 Governer no. : 0 420 083 129 cm3/:0.3Dispersion Customer-spec. information Customer : DB 100H.: (0.6) : OM 364 LA 2nd speed 1/min: 300.0 Engine Contr.-rod trav. m: 6.8...6.9 Del.quantity cm3/: 1.0...1.4 1st version kW : 100.0 100H.: (0.7...1.6) Speed 1/min: 2600 cm3/:0.3Dispersion 100H.: (0.5) TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C (B) Setting of injection pump with : 38...42 externally-mounted governor SLEEVE TRAVELS Overflow valve : 1 417 413 000 1st speed 1/min: 1340 Sleeve travel mm: 8.50...8.70 2nd speed 1/min: 1450 Sleeve travel mm: 9.50...9.90 3rd speed 1/min: 500 Sleeve travel mm: 2.70...3.30 Inlet press., bar: 1.50 Calibrating nozzle-holder assembly : 0 681 343 009 4th speed 1/min: 300 Sleeve travel mm: 1.30...1.70 Opening pressure, bar : 172...175 SLEEVE POSITION Control-lever position Degree: -1 1/min: 1340 : 1 680 750 015 Test inj. tubing Speed Cont.-rod travelmm: 15.20...17.80 Outside diameter x Wall thickness FULL-LOAD DELIV. AT FULL-LOAD STOP : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Speed 1/min: 1300 Charge press. hPa: 700 Insp. values in parentheses Set constant delivery quant. Del.quantity cm3/: 98.0...100.0 per values 1000H.: (96.0...102.0) cm3/ : 3.50 START OF DELIVERY Dispersion 1000H.: (6.00) Test pressure, bar: 30...32 HIGHEST RATED SPEED Prestroke mm : 3.70...3.80 : (3.65...3.85) 1st version Contr.-rod trav.mm: 9.00...12.00

**HO3** 

Control-lever position degrees: 49...57 Testing: 1st c-rod trav.mm : 11.60 Speed 1/min: 1340...1350 2nd c-rod trav.mm : 4.00 1/min : 1445...1475 Speed 4th speed 1/min : 1550 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 16...24 Setting point w/out aux. spring 1/min : 300 Contr.-rod trav.mm: 6.8 Testing: 1/min : 100 Speed C-rod trav.mm min: 8.40 Speed 1/min: 300 C-rod trav.mm : 6.80...6.90 CONSTANT REGULATION 1/min : 320...550 Speed compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : 200 Contr.-rod trav.mm: 11.30...11.40 Measurement 1/min : 500 Speed 1st pressure hPa : -: 10.50...10.60 C-rod trav.mm 2nd pressure hPa : 335 : 12.10...12.40 : 700 C-rod trav.mm 3rd pressure hPa C-rod trav.mm : 12.60...12.70 SWITCH-OVER POINT 1/min : 220 (250) Speed FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 700 1/min : 600 Speed Del.quantity cm3/: 82.5...85.5 1000H.: (80.0...88.5) cm3/: 5.00 1000H.: (7.00) Dispersion Charge press. hPa : -1/min : 500 Speed

H04

Del.quantity cm3/: 49.0...51.0 1000H.: (47.0...53.0)

STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 85.0...95.0 1000H.: (82.0...98.0)

LOW IDLE

Speed 1/min: 300 Contr.-rod trav.mm: 6.80...6.90 Del.quantity cm3/: 10.0...14.0 1000H.: (7.5...16.5)

Dispersion cm3/: 3.50 1000H.: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

: MB 5,7 A 12 : 02.06.87 Test sheet Edition

Superceeded

Calibrating oil : ISO-4113

: 0 403 446 124 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1101

EP type number : 0 413 406 102

Governor

Governor design. : RQV300/1300MW34 Governer no. : 0 420 083 032

Customer-spec. information

Customer : DB

Engine : 0M362LA

1st version kW : 141.0 1/min: 2600 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00

```
Cam sequence : 1-5-3-6-2-4
                                                           Setting point w/out aux. spring
                                                           Speed 1/min : 300
                                                           Contr.-rod trav.mm: 6.0
$D ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                           Testing:
                                                                         1/min : 100
                                                           Speed
                                                           C-rod trav.mm min: 7.60
                                                                         1/min : 300
BASIC SETTING
                                                           Speed
                                                           C-rod trav.mm
                                                                                : 6.00...6.10
1st speed
                 1/mi: 1300
                                                           C-rod trav.mm
                                                                                : 2.00
                                                                        1/min : 460...520
                                                           Speed
Contr.-rod trav.mm: 11.90...12.00
                                                            compensator (LDA,ADA,ALDA)
Del.quantity cm3/: 9.4...9.6
                100H.: (9.2...9.8)
                                                           1st version
                                                           Setting
                                                                         1/min : 500
Dispersion
               cm3/:0.3
                                                           Speed
                                                           Pressure
                                                                         hPa : -
                100H.: (0.6)
                                                           Contr.-rod trav.mm: 10.20...10.30
                1/min: 300.0
                                                           Measurement
2nd speed
Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/: 1.0...1.4

100H.: (0.8...1.7)

Dispersion cm3/: 0.3
                                                                         1/min : 500
                                                           Speed
                                                           1st pressure hPa : 100
                                                             C-rod trav.mm
                                                                                : 0.40...0,50
                100H.: (0.5)
                                                           2nd pressure hPa : 125
                                                             C-rod trav.mm : 0.90...1.10
                                                           3rd pressure hPa : 700
SLEEVE POSITION
                                                             C-rod trav.mm : 11.90...12.00
Control-lever position
              Degree: -1
1/min: 1300
Speed
                                                           SWITCH-OVER POINT
Cont.-rod travelmm: 15.20...17.80
                                                                         1/min : 230 (250)
                                                           Speed
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                           FUEL-DELIVERY CHARACTERISTICS
1st version
                                                           1st version
Speed 1/min: 1300
Charge press. hPa: 700
Del.quantity cm3/: 94.5...96.5
1000H.: (92.5...98.5)
Dispersion cm3/: 3.50
                                                           Charge press. hPa: 700
                                                          Speed 1/min: 800
Del.quantity cm3/: 92.0...96.0
1000H: (90.0...98.0)
Dispersion cm3/: 5.00
1000H: (7.00)
              1000H.: (6.00)
                                                           Charge press. hPa : -
                                                                         1/min : 500
                                                           Speed
HIGHEST RATED SPEED
                                                          Del.quantity cm3/: 54.5...56.5
1000H:: (52.5...58.5)
Dispersion cm3/: 3.50
1000H:: 6.00
1st version
Control-lever
 position degrees: 57...65
Testing:
1st c-rod trav.mm : 10.90
             1/min : 1340...1350
                                                           STARTING FUEL DELIVERY
  Speed
2nd c-rod trav.mm : 4.00
              1/min : 1460...1490
  Speed
              1/min : 1600
4th speed
                                                           Speed
                                                                         1/min : 100
                                                           Del.quantity cm3/: 80.0...90.0
1000H.: (77.0...93.0)
                     : 0.10...1.00
  C-rod trav.mm
LOWEST RATED SPEED I
                                                           LOW IDLE
Control-lever
 position degrees: 16...24
```

**H06** 

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : MB 5,7 A 11 : 02.06.87

Calibrating oil : ISO-4113

: 0 403 446 134 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1101 EP type number : 0 413 406 102

Governor

Governor design. : RQV300/1300MW44 Governer no. : 0 420 083 053

Customer-spec. information Customer

: 0M362LA Engine

1st version kW : 141.0 1/min: 2600 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Cverflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nezzle-holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

: 3.20...3.30 Prestroke mm : (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00

```
Setting point w/out aux. spring
Cam sequence
                   : 1-5-3-6-2-4
                                                                    1/min : 300
                                                       Speed
                                                       Contr.-rod trav.mm: 6.0
SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                       Testing:
                                                       Speed 1/min: 100
C-rod trav.mm min: 7.60
BASIC SETTING
                                                                    1/min : 300
                                                       Speed
                                                       C-rod trav.mm
                                                                       : 6.00...6.10
                                                                           : 2.00
               1/mi: 1300
                                                       C-rod trav.mm
1st speed
                                                                    1/min : 520...580
                                                       Speed
Contr.-rod trav.mm: 11.90...12.00
                                                        compensator (LDA, ADA, ALDA)
Del.quantity cm3/: 9.4...9.6
               100H.: (9.2...9.8)
                                                       1st version
                                                       Setting
Dispersion
              cm3/:0.3
                                                                     1/min : 500
                                                       Speed
                                                                    hPa : -
                                                       Pressure
                                                       Contr.-rod trav.mm: 10.00...10.10
               100H.: (0.6)
              1/min: 300.0
2nd speed
                                                       Measurement
Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/: 1.0...1.4

100H.: (0.8...1.7)

Dispersion cm3/: 0.3
                                                                     1/min : 500
                                                       Speed
                                                       1st pressure hPa : 100
                                                                           : 0.40...0.50
                                                         C-rod trav.mm
               100H.: (0.5)
                                                       2nd pressure hPa : 125
                                                         C-rod trav.mm : 0.90...1.10
                                                       3rd pressure hPa : 700
SLEEVE POSITION
                                                         C-rod trav.mm
                                                                           : 11.90...12.00
Control-lever position
             Degree: -1
1/min: 1330
Speed
                                                       SWITCH-OVER POINT
Cont.-rod travelmm: 15.20...17.80
                                                                    1/min : 230 (250)
                                                       Speed
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                       FUEL-DELIVERY CHARACTERISTICS
1st version
                                                       1st version
Speed 1/min: 1300
Charge press. hPa: 700
                                                       Charge press. hPa : 700
                                                                    1/min : 800
                                                       Speed
                                                       Del.quantity cm3/: 92.0...96.0
1000H.: (90.0...98.0)
Del.quantity cm3/: 94.5...96.5
             1000H.: (92.5...98.5)
cm3/ : 3.50
                                                                     cm3/:5.00
                                                       Dispersion
Dispersion
             1000H.: (6.00)
                                                                     1000H.: (7.00)
                                                       Charge press. hPa : -
                                                                     1/min : 500
HIGHEST RATED SPEED
                                                       Speed
                                                       Del.quantity cm3/: 51.5...53.5
1000H.: (49.5...55.5)
Dispersion cm3/: 3.50
1st version
Control-lever
 position degrees: 60...68
                                                                     1000H.: 6.00
Testing:
1st c-rod trav.mm : 10.90
             1/min : 1340...1350
                                                       STARTING FUEL DELIVERY
  Speed
2nd c-rod trav.mm : 4.00
  Speed
             1/min : 1435...1465
             1/min : 1600
                                                                    1/min : 100
                                                       Speed
4th speed
                                                       Del.quantity cm3/ : 80.0...90.0
                    : 0.10...1.00
  C-rod trav.mm
                                                                     1000H.: (77.0...93.0)
LOHEST RATED SPEED I
                                                       LOW IDLE
Control-lever
 position degrees: 7...15
```

H09

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition Superceeded : MB 8,7 0 : 02.06.87

Calibrating oil : ISO-4113

: 0 403 446 143 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1101

EP type number : 0 413 406 102

Governor

Governor design. : RQV300/1300MW44-1 Governer no. : 0 420 083 064

Customer-spec. information Customer

: 0M362LA Engine

1st version kW : 141.0 1/min: 2600 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter x Wall thickness

፠ ୬.ଟ୩gth mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY Test pressure, bar: 30...32

: 3.20...3.30 Prestroke mm : (3.15...3.35) Contr.-rod trav.mm: 9.00...12.00

```
: 1-5-3-6-2-4
Cam sequence
                                                   Setting point w/out aux. spring
                                                   Speed 1/min : 300
                                                   Contr.-rod trav.mm: 6.0
SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                   Testing:
                                                   Speed
                                                                1/min : 100
                                                   C-rod trav.mm min : 7.60
BASIC SETTING
                                                   Speed
                                                                1/min : 300
                                                   C-rod trav.mm
                                                                      : 6.00...6.10
                                                                     : 2.00
              1/mi: 1300
                                                   C-rod trav.mm
1st speed
                                                               1/min: 520...580
                                                   Speed
Contr.-rod trav.mm: 11.90...12.00
                                                    compensator (LDA,ADA,ALDA)
Del.quantity cm3/ : 9.4...9.6
             100H.: (9.2...9.8)
                                                   1st version
                                                   Setting
Dispersion
             cm3/:0.3
                                                                1/min : 500
                                                   Speed
                                                   Pressure
                                                               hPa : -
                                                   Contr.-rod trav.mm: 10.20...10.30
             100H.: (0.6)
                                                   Measurement
2nd speed
             1/min: 300.0
Contr.-rod trav. m: 6.0...6.1
                                                   Speed
                                                               1/min : 500
Del.quantity cm3/: 1.0...1.4
100H.: (0.8...1.7)
                                                   1st pressure hPa : 100
             cm3/: 0.3
                                                     C-rod trav.mm
                                                                      : 0.40...0.50
Dispersion
             100H.: (0.5)
                                                   2nd pressure hPa : 125
                                                                      : 0.90...1.10
                                                     C-rod trav.mm
SLEEVE POSITION
                                                   3rd pressure hPa : 700
Control-lever position
                                                                      : 11.90...12.00
                                                     C-rod trav.mm
            Degree: -1
             17min: 1330
                                                   SWITCH-OVER POINT
Speed
Cont.-rod travelmm: 15.20...17.80
                                                                1/min : 230 (250)
                                                   Speed
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                   FUEL-DELIVERY CHARACTERISTICS
1st version
                                                   1st version
Speed 1/min: 1300
Charge press. hPa: 700
                                                   Charge press. hPa: 700
                                                                1/min : 800
                                                   Speed
Del.quantity cm3/: 94.5...96.5
                                                   Del.quantity cm3/: 92,0...96.0
1000H.: (90.0...98.0)
            1000H.: (92.5...98.5)
            cm3/ : 3.50
                                                                cm3/:5.00
                                                   Dispersion
Dispersion
                                                                1000H.: (7.00)
            1000H.: (6.00)
                                                   Charge press. hPa : -
                                                   Speed 1/min : 500 ;
Del.quantity cm3/ : 54.5...56.5
HIGHEST RATED SPEED
1st version
                                                                1000H.: (52.5...58.5)
Control-lever
                                                                cm3/: 3.50
 position degrees: 60...68
                                                   Dispersion
                                                                1000H.: 6.00
Testing:
1st c-rod trav.mm : 10.90
           1/min : 1340...1350
  Speed
                                                   STARTING FUEL DELIVERY
                                                                                ===
2nd c-rod trav.mm : 4.00
            1/min : 1435...1465
  Speed
            1/min : 1600
4th speed
                                                   Speed
                                                               1/min : 100
                                                   Del.quantity cm3/: 80.0...90.0
  C-rod trav.mm
                   : 0.10...1.00
                                                                1000H.: (77.0...93.0)
LOWEST RATED SPEED I
                                                   LOW IDLE
Control-lever
 position degrees: 7...15
H12
```

Speed 1/min: 300 Contr.-rod trav.mm: 6.00...6.10 Del.quantity cm3/: 10.5...14.5 1000H.: (8.0...17.0) Dispersion cm3/: 3.50 1000H.: (5.50)

Remarks:

Set intermediate-speed stop (ZDA) to contact at 1300 1/min, then turn back 1/2 turn.

```
Cam sequence : 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                       SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)
Test sheet
                    : MB 6,0 D 9 : 03.04.87
Edition
Superceeded
                    : 4.86
Calibrating oil
                   : ISO-4113
                                                       BASIC SETTING
                    : 0 403 446 158
Combination no.
                                                       1st speed
                                                                   1/mi: 1300
                                                       Contr.-rod trav.mm: 12.10...12.20
Injection pump
Pump designation : PES6MW100/720RS1131
                    : 0 413 406 123
                                                       Del.quantity cm3/: 9.65...10.25
EP type number
Governor
                                                                      100H.: (9.85...10.45)
Governor design. : RQV300...1300MW50-1
Governer no. : 0 420 083 089
                                                                      cm3/: 0.35
                                                       Dispersion
Customer-spec. information
Customer
                                                                      100H.: (0.6)
Engine
                    : OM 366 LA
                                                                      1/min: 300.0
                                                       2nd speed
                                                       Contr.-rod trav. m: 6.1...6.2

Del.quantity cm3/: 0.9...1.3

100H.: (0.65...1.55)

Dispersion cm3/: 0.35
1st version kW : 150.0
              1/min: 2600
Speed
                                                                      100H.: (0.5)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. OC
                                                       SLEEVE POSITION
                    : 38...42
                                                       Control-lever position
                                                       Degree: -1
Speed 1/min: 1340
Cont.-rod travelmm: 15.20...17.80
Overflow valve
                    : 1 417 413 000
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
Inlet press., bar : 1.50
Calibrating nozzle-holder
                                                       1st version
                                                       Speed 1/min: 1300
Charge press. hPa: 700
Del.quantity cm3/: 96.5...102.5
1000H.: (98.5...104.5)
Dispersion cm3/: 3.50
                 : 0 681 343 009
 assembly
Opening
 pressure, bar : 172...175
                                                                     1000H.: (6.00)
Test inj. tubing : 1 680 750 015
                                                       HIGHEST RATED SPEED
Outside diameter
                                                       1st version
x Wall thickness
                                                       Control-lever
                                                        position degrees: 48...56
                 : 6.00x1.50x600
x Length mm
(A) Injection pump setting values
                                                       Testing:
    Insp. values in parentheses
                                                       1st c-rod trav.mm : 11.10
    Set constant delivery quant.
                                                                  1/min : 1340...1350
                                                         Speed
                                                       2nd c-rod trav.mm : 4.00
    per values _____
                                                         Speed 1/min: 1440...1470
                                                       4th speed 1/min : 1550
START OF DELIVERY
                                                         C-rod trav.mm : 0.00...1.00
Test pressure, bar: 30...32
                    : 3.70...3.80
                                                       LOWEST RATED SPEED I
Prestroke mm
                                                       Control-lever
                    : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
                                                        position degrees: 11...19
H14
```

```
Setting point w/out aux. spring Speed 1/min: 300
Contr.-rod trav.mm: 6.1
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 7.60
             1/min : 300
Speed
C-rod trav.mm
                   : 6.10...6.20
CONSTANT REGULATION
             1/min : 350...550
Speed
 compensator (LDA, ADA, ALDA)
1st version
Setting
             1/min : 500
Speed
             hPa : 170
Pressure
Contr.-rod trav.mm: 10.80...10.90
Measurement
             1/min : 500
Speed
1st pressure hPa : -
                    : 10.50...10.60
  C-rod trav.mm
                   : 225
2nd pressure hPa
C-rod trav.mm : 11.70...12.00
3rd pressure hPa : 700
  C-rod trav.mm : 12.10...12.20
SWITCH-OVER POINT
Speed
            1/min : 220 (250)
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa: 700
             1/min : 600
Speed
Del.quantity cm3/: 85.0...89.0
1000H.: (83.0...91.0)
             cm3/: 5.00
1000H.: (7.00)
Dispersion
Charge press. hPa : -
             1/min : 500
Speed
Del.quantity cm3/: 54.0...56.0
             1000H.: (52.0...58.0)
STARTING FUEL DELIVERY
             1/min : 100
Speed
Del.quantity cm3/: 71.0...81.0
             1000H.: (68.0...84.0)
LOW IDLE
            1/min : 300
Speed
```

H15

Contr.-rod trav.mm: 6.10...6.20
Del.quantity cm3/: 9.00...13.0
1000H.: (6.5...15.5)
Dispersion cm3/: 3.50
1000H.: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : 09.03.87 Edition Superceeded Calibrating oil : ISO-4113 Combination no. : 0 403 446 166 Injection pump Pump designation : PES6MW100/720RS1133 : 0 413 406 126 EP type number Governor Governor design. : RQ325...1325MW65 Governer no. : 0 420 082 018 Customer-spec. information Customer : KHD : BF 6L 913 BW Engine 1st version kW : 124.0 Speed 1/min: 2650 TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar : 1.50 Calibrating nozzle-holder : 0 P68 134 3009 assembly Opening pressure, bar : 172...175 Test inj. tubing : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_ START OF DELIVERY Test pressure, bar: 30...32 : 3.50...3.60 Prestroke mm : (3.45...3.65) Contr.-rod trav.mm: 9.00...12.00

```
Cam sequence : 1- 5- 3- 6- 2- 4
                                                             LOWEST RATED SPEED I
                                                             Control-lever
                                                              position degrees: 8...16
SD ang. spacing CS: 0~60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                             Setting point w/out aux. spring
                                                             Speed 1/min: 325
Contr.-rod trav.mm: 7.0
BASIC SETTING
                                                             Testing:
1st speed
               1/mi: 1325
                                                             Speed
                                                                            1/min : 100
                                                             C-rod trav.mm min: 8.60
                                                                           1/min : 325
mm : 7.00...7.10
Contr.-rod trav.mm: 11.00...11.10
                                                             Speed
                                                             C-rod trav.mm
Del.quantity ck2/: 10.1...10.3
                                                             CONSTANT REGULATION
                                                                           1/min : 340...450
                100H.: (9.9...10.5)
                                                             Speed
Dispersion
                cm3/:0.3
                                                              compensator (LDA, ADA, ALDA)
                100H.: (0.6)
                                                             1st version
2nd speed 1/min: 325.0

Contr.-rod trav. m: 7.0...7.1

Del.quantity cm3/: 1.1...1.5

100H.: (0.9...1.7)

Dispersion cm3/: 0.3
                                                             Setting
                                                                           1/min : 500
hPa : 700
                                                             Speed
                                                             Pressure
                                                             Contr.-rod trav.mm: 11.00...11.10
                100H.: (0.5)
                                                             Measurement
                                                                           1/min : 500
                                                             Speed
SLEEVE POSITION
Control-lever position
                                                             1st pressure hPa
               Degree: -2
1/min: 700
                                                               C-rod trav.mm
                                                                                   : 9.50...9.60
                                                                                  : 350
Speed
                                                             2nd pressure hPa
Cont.-rod travelmm: 19.20...20.80
                                                               C-rod trav.mm : 10.10...10.40
                                                             3rd pressure hPa : 450
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                               C-rod trav.mm
                                                                                  : 10.70...10.80
                                                             FUEL-DELIVERY CHARACTERISTICS
1st version
Speed 1/min: 1325
Charge press. hPa: 700
Del.quantity cm3/: 101.0...103.0
1000H.: (99.0...105.0)
Dispersion cm3/: 3.50
                                                             1st version
                                                             Charge press. hPa : 700
                                                                           1/min : 850
                                                             Speed
                                                             Del.quantity cm3/: 93.0...97,0
1000H.: (91.0...99.0)
               1000H.: (6.00)
                                                                            cm3/: 3.50
1000H.: (7.00)
                                                             Dispersion
HIGHEST RATED SPEED
                                                             Charge press. hPa : -
1st version
                                                             Speed 1/min: 500
Del.quantity cm3/: 57.0...59.0
1000H.: (55.0...61.0)
Control-lever
 position degrees: 26...34
Setting point:
Speed
          1/min : 700
Contr.-rod trav.mm: 20.0
                                                             STARTING FUEL DELIVERY
Testing:
1st c-rod trav.mm : 10.00
Speed 1/min : 1375...1385
2nd c-rod trav.mm : 4.00
                                                             Speed
                                                                           1/min : 100
                                                            Del.quantity cm3/: 120.0...140.0
1000H.: (117.0...143.0)
             1/min : 1445...1475
  Speed
               1/min : 1550
                                                            LOW IDLE
4th speed
  C-rod trav.mm : 0.10...1.00
H17
```

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                       Cam sequence
                                                                           : 1-5-3-6-2-4
Note inst. in remarks column
                                                       SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)
Test sheet
                    : MB 6,0 D 25
                    : 13.05.87
Edition
Superceeded
                                                       BASIC SETTING
Calibrating oil : ISO-4113
                    : 0 403 446 170
                                                                  1/mi: 1300
Combination no.
                                                       1st speed
Injection pump
                                                       Contr.-rod trav.mm: 11.00...11.10
Pump designation : PES6MW100/720RS1144
                    : 0 413 406 138
                                                       Del.guantity cm3/: 8.2...8.4
EP type number
Governor
Governor design.
                    : RQV300...1300MW69
                                                                      100H.: (8.0...8.6)
Governer no.
                    : 0 420 083 102
                                                       Dispersion
                                                                     cm3/:0.3
Customer-spec. information
                                                                      100H.: (0.6)
Customer
                                                       2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.8...7.9
Del.quantity cm3/: 1.0...1.4
100H.: (0.9...1.5)
                    : 0M366A
Engine
1st version kW : 125.0
              1/min: 2600
Speed
                                                                     cm3/:0.3
                                                       Dispersion
                                                                      100H.: (0.5)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                                                       (B) Setting of injection pump with
                    : 38...42
                                                           externally-mounted governor
                                                       SLEEVE TRAVELS
Overflow valve
                    : 1 417 413 000
                                                       1st speed 1/min: 1340
                                                         Sleeve travel mm: 8.40...8.60
                                                       2nd speed 1/min: 1450
Inlet press., bar: 1.50
                                                         Sleeve travel mm: 8.70...9.10
                                                       3rd speed 1/min: 600
Calibrating nozzle-holder
                                                       Sleeve travel mm: 3.90...4.50 4th speed 1/min: 300
                   : 0 681 343 009
 assembly
                                                         Sleeve travel mm: 0.80...1.30
Opening
 pressure, bar : 172...175
                                                       SLEEVE POSITION
                                                       Control-lever position
                                                                    Degree: -1
1/min: 1350
Test inj. tubing : 1 680 750 008
                                                       Speed
                                                       Cont.-rod travelmm: 15.20...17.80
Outside diameter
x Wall thickness
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
                   : 6.00x2.00x600
x Length mm
(A) Injection pump setting values
                                                       1st version
    Insp. values in parentheses
Set constant delivery quant.
                                                                     1/min: 1300
                                                       Speed
                                                       Del.quantity cm3/: 82.0...84.0
1000H.: (80.0...86.0)
Dispersion cm3/: 3.50
1000H.: (6.00)
    per values ____
START OF DELIVERY
Test pressure, bar: 30...32
                                                       HIGHEST RATED SPEED
                    : 3.70...3.80
Prestroke mm
                                                       1st version
                    : (3.65...3.85)
                                                       Control-lever
Contr.-rod trav.mm: 9.00...12.00
                                                        position degrees: 50...58
H19
```

Testing: 1st c-rod trav.mm : 10.00 Speed 1/min: 1340...1350 2nd c-rod trav.mm : 4.00 1/min : 1425...1455 Speed 4th speed 1/min: 1550 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 18...26 Setting point w/out aux. spring 1/min : 300 Contr.-rod trav.mm: 7.8 Testing: 1/min : 100 Speed C-rod trav.mm min : 10.20 1/min : 300 .mm : 7.80...7.90 Speed C-rod trav.mm CONSTANT REGULATION Speed 1/min : 330...500 TORQUE CONTROL Torque-control curve - 1st version 1st speed 1/min : 1300 C-rod trav.mm : 11.00...11.10 1/min : 750 2nd speed C-rod trav.mm : 11.90...12.00 3rd speed 1/min: 700 C-rod trav.mm : 12.00...12.20 4th speed 1/min: 1100 C-rod trav.mm : 11.00...11.20 SWITCH-OVER POINT 1/min : 230 (250) Speed FUEL-DELIVERY CHARACTERISTICS Speed 1/min: 750 Del.quantity cm3/: 79.0...82.0 1000H.: (76.5...84.5) cm3/: 5.00 Dispersion 1000H.: (7.00) STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 80.0...90.0 1000H.: (77.0...93.0) Contr.-rod trav.mm: 19.00...21.00 LOW IDLE Speed 1/min : 300

Contr.-rod trav.mm: 7.80...7.90

H20

Del.quantity cm3/: 10.0...14.0 1000H.: (9.0...15.0) Dispersion cm3/: 3.50 1000H.: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 20 : 10.04.87

Superceeded

Calibrating oil : ISO-4113

Combination no. : 0 403 446 177

Injection pump

Pump designation : PES6MW100/720RS1139

EP type number : 0 413 406 134

Governor

Governor design. : RQV300...1300MW48

Governer no. : 0 420 083 066

Customer-spec. information

Customer

: 0M366A Engine

1st version kW : 125.0 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

```
Cam sequence
                    : 1-5-3-6-2-4
                                                        Testing:
                                                        1st c-rod trav.mm : 10.00
                                                          Speed 1/min: 1340...1350
SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                                                        2nd c-rod trav.mm : 4.00
                                                                    1/min : 1425...1455
                                                          Speed
                                                        4th speed 1/min : 1550
BASIC SETTING
                                                          C-rod trav.mm : 0.00...1.00
                                                        LOWEST RATED SPEED I
1st speed
            1/mi: 1300
                                                        Control-lever
Contr.-rod trav.mm: 11.00...11.10
                                                         position degrees: 18...26
                                                        Setting point w/out aux. spring
                                                        Speed 1/min: 300
Contr.-rod trav.mm: 7.85
Del.quantity cm3/: 8.2...8.4
               100H.: (8.0...8.6)
                                                        Testing:
Dispersion
               cm3/: 0.35
                                                                     1/min : 100
                                                        Speed
                                                        C-rod trav.mm min : 8.70
               100H.: (0.6)
                                                        Speed
                                                                   1/min : 300
                                                        C-rod trav.mm : 7.80...7.90
2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.8...7.9
Del.quantity cm3/: 1.0...1.4
100H.: (0.9...1.5)
                                                        CONSTANT REGULATION
                                                                     1/min : 330...500
                                                        Speed
               cm3/: 0.35
Dispersion
                                                        TORQUE CONTROL
               100H.: (0.5)
                                                        Torque-control curve - 1st version
                                                        1st speed 1/min : 1300
(B) Setting of injection pump with
                                                          C-rod trav.mm : 11.00...11.10
    externally-mounted governor
                                                                     1/min: 800
                                                        2nd speed
                                                          C-rod trav.mm : 11.80...12.00 d speed 1/min : 585
SLEEVE TRAVELS
                                                        3rd speed
                                                          C-rod trav.mm : 12.00...12.20
1st speed 1/min: 1340
  Sleeve travel mm: 8.50...8.70
                                                        4th speed 1/min : 1100
2nd speed 1/min: 1450
                                                          C-rod trav.mm : 11.00...11.10
  Sleeve travel mm: 9.30...9.70
3rd speed 1/min: 500
Sleeve travel mm: 2.70...3.30
4th speed 1/min: 300
                                                        SWITCH-OVER POINT
                                                                     1/min : 230 (250)
                                                        Speed
  Sleeve travel mm: 1.20...1.70
                                                        FUEL-DELIVERY CHARACTERISTICS
                                                                     1/min : 800
                                                        Speed
                                                        Del.quantity cm3/: 81.0...83.0
SLEEVE POSITION
                                                                     1000H.: (79.0...85.0)
Control-lever position
                                                                      cm3/: 5.00
             Degree: -1
1/min: 1350
                                                        Dispersion
                                                       1000H.: (7.00)

Speed 1/min: 585

Del.quantity cm3/: 77.5...80.5
1000H.: (75.0...83.0)
Speed
Cont.-rod travelmm: 15.20...17.80
FULL-LOAD DELIV. AT FULL-LOAD STOP
1st version
Speed
               1/min: 1300
                                                        STARTING FUEL DELIVERY
Del.quantity cm3/ : 82.0...84.0
             1000H.: (80.0...86.0)
cm3/: 3.50
                                                       Speed 1/min: 100
Del.quantity cm3/: 80.0...90.0
1000H.: (77.0...93.0)
Dispersion
              1000H.: (6.00)
HIGHEST RATED SPEED
                                                       LOW IDLE
1st version
Control-lever
                                                                     1/min : 300
 position degrees: 50...58
                                                        Speed
```

**H22** 

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : MB 6,0 D 26 Edition : 13.05.87 Superceeded Calibrating oil : ISO-4113 Combination no. : 0 403 446 177 Injection pump Pump designation : PES6MW100/720RS1144 EP type number : 0 413 406 138 Governor Governor design. : RQV300...1300MW48 Governer no. : 0 420 083 066 Customer-spec. information Customer : DB

Engine : 0M366A

1st version kW : 125.0 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-5-3-6-2-4 Testing: 1st c-rod trav.mm : 10.00 1/min : 1340...1350 Speed SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) 2nd c-rod trav.mm : 4.00 1/min : 1425...1455 Speed 4th speed 1/min: 1550 BASIC SETTING C-rod trav.mm : 0.00...1.00 1/mi: !300 LOWEST RATED SPEED I 1st speed Control-lever Contr.-rod tray.mm: 11.00...11.10 position degrees: 18...26 Setting point w/out aux. spring Del.quantity cm3/: 8.2...8.4 1/min : 300 Contr.-rod trav.mm: 7.8 100H.: (8.0...8.6) Testing: Dispersion cm3/:0.3Speed 1/min : 100 C-rod trav.mm min : 8.70 Speed 1/min : 300 C-rod trav.mm : 7.80...7.90 100H.: (0.6) 2nd speed 1/min: 300.0 Contr.-rod trav. m: 7.8...7.9 CONSTANT REGULATION Del.quantity cm3/: 1.0...1.4 1/min : 330...500 Speed 100H.: (0.9...1.5) cm3/: 0.3 100H.: (0.5) TORQUE CONTROL Dispersion Torque-control curve - 1st version 1st speed 1/min: 1300 C-rod trav.mm: 11.00...11.10 2nd speed 1/min: 800 (B) Setting of injection pump with externally-mounted governor C-rod trav.mm : 11.80...12.00 3rd speed 1/min: 585 SLEEVE TRAVELS 1st speed 1/min: 1340 C-rod trav.mm : 12.00...12.20 Sleeve travel mm: 8.50...8.70 4th speed 1/min : 1100 2nd speed 1/min: 1450
Sleeve travel mm: 9.30...9.70
3rd speed 1/min: 500
Sleeve travel mm: 2.70...3.30
4th speed 1/min: 300 C-rod trav.mm : 11.00...11.10 SWITCH-OVER POINT Speed 1/min : 230 (250) FUEL-DELIVERY CHARACTERISTICS Sleeve travel mm: 1.20...1.70 1/min : 800 Speed Del.quantity cm3/: 81.0...83.0 1000H.: (79.0...85.0) Dispersion cm3/: 5.00 1000H.: (7.00) Speed 1/min: 585 Del.quantity cm3/: 77.5...80.5 SLEEVE POSITION Control-lever position Degree: -1 Speed 1/min: 1350 Cont.-rod travelmm: 15,20...17.80 1000H.: (75.0...83.0) FULL-LOAD DELIV. AT FULL-LOAD STOP 1st version 1/min: 1300 STARTING FUEL DELIVERY Speed Del.quantity cm3/: 82.0...84.0 1000H:: (80.0...86.0) Dispersion cm3/: 3.50 1/min : 100 Speed Del.quantity cm3/: 80.0...90.0 1000H:: (77.0...93.0) 1000H.: (6.00) Contr.-rod trav.mm: 19.00...21.00 HIGHEST RATED SPEED 1st version LOW IDLE Control-lever position degrees: 30...58 **H25** 

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition : MB 6,0 D 27 : 13.05.87

Superceeded

Calibrating oil : ISO-4113

Combination no. : 0 403 446 179

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RQV300...1300MW74 Governer no. : 0 420 083 112

Customer-spec. information

Customer : DB

: 0M366LA Engine

1st version kW : 127.0 Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-5-3-6-2-4 Testing: 1st c-rod trav.mm : 10.00 Speed 1/min: 1340...1350 2nd c-rod trav.mm: 4.00 SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) 1/min : 1425...1455 Speed 1/min : 1550 4th speed BASIC SETTING C-rod trav.mm : 0.00...1.00 1st speed 1/mi: 1300 LOWEST RATED SPEED I Control-lever Contr.-rod trav.mm: 11.00...11.10 position degrees: 18...26 Setting point w/out aux. spring Speed 1/min: 300 Contr.-rod trav.mm: 7.8 Del.quantity cm3/ : 7.6...7.8 100%.: (7.4...8.0) Testing: cm3/:0.31/min : 100 Dispersion Speed C-rod trav.mm min: 9.70 100H.: (0.6) 1/min : 300 Speed : 7.80...7.90 C-rod trav.mm 2nd speed 1/min: 300.0 Contr.-rod trav. m: 7.8...7.9 Del.quantity cm3/: 1.0...1.4 100H.: (0.9...1.5) CONSTANT REGULATION 1/min : 330...600 Speed cm3/:0.3Dispersion TORQUE CONTROL 100H.: (0.5) Torque-control curve - 1st version 1/min : 1300 1st speed C-rod trav.mm : 11.00...11.10 (B) Setting of injection pump with externally-mounted governor 2nd speed 1/min: 750 C-rod trav.mm : 11.70...11.80 3rd speed 1/min: 1125 C-rod trav.mm: 11.40...11.50 SLEEVE TRAVELS 1st speed 1/min: 1340 Sleeve travel mm: 8.50...8.70 1/min: 1450 SWITCH-OVER POINT 2nd speed Sleeve travel mm: 9.50...9.70 1/min : 230 (250) Speed 3rd speed 1/min: 700 FUEL-DELIVERY CHARACTERISTICS Sleeve travel mm: 3.90...4.50 4th speed 1/min: 300 1/min : 750 Speed Del.quantity cm3/: 68.0...70.0 1000H:: (65.0...73.0) Dispersion cm3/: 5.00 Sleeve travel mm: 1.30...1.70 SLEEVE POSITION 1000H.: (7.00) Control-lever position Degree: -1 1/min: 1335 Speed STARTING FUEL DELIVERY Cont.-rod travelmm: 15.20...17.80 FULL-LOAD DELIV. AT FULL-LOAD STOP 1/min : 100 Speed Del.quantity cm3/: 80.0...90.0 1000H.: (77.0...93.0) Contr.-rod trav.mm: 19.00...21.00 1st version 1/min: 1300 Speed Del.quantity cm3/ : 81.0...83.0 1000H.: (79.0...85.0) cm3/ : 3.50 Dispersion LOW IDLE 1000H.: (6.00) HIGHEST RATED SPEED 1st version Control-lever position degrees: 50...58

H28

Dispersion cm3/: 3.50 1000H.: (5.00)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 34 : 10.04.87 Edition

Superceeded

Calibrating oil : ISO-4113

Combination no. : 0 403 446 184

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. Governer no. : RQV300...1300MW48-3 : 0 420 083 121

Customer-spec. information Customer : DB

: 0M366A Engine

1st version kW : 125.0 1/min: 2600 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant.

per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 : (3.65...3.85) Prestroke mm

Contr.-rod trav.mm: 19.00...21.00

```
Cam sequence : 1-5-3-6-2-4
                                                        Testing:
                                                        1st c-rod trav.mm : 9.90
                                                        Speed 1/min: 1340...1350
2nd c-rod trav.mm: 4,00
SD ang. spacing ^{0}CS: 0-60-120-180-240-300 Tolerance + - ^{0}: 0.50 (0.75)
                                                                     1/min : 1425...1455
1/min : 1550
                                                           Speed
                                                         4th speed
BASIC SETTING
                                                           C-rod trav.mm : 0.00...1.00
                                                        LOWEST RATED SPEED I
1st speed
                1/mi: 1300
                                                        Control-lever
Contr.-rod trav.mm: 10.90...11.00
                                                         position degrees: 18...26
                                                        Setting point w/out aux. spring
Speed 1/min: 300
Contr.-rod trav.mm: 7.8
Del.quantity cm3/ : 8.0...8.2
               100H.: (7.8...8.4)
                                                        Testing:
               cm3/: 0.35
                                                                      1/min : 100
Dispersion
                                                        Speed
                                                        C-rod trav.mm min: 9.30
               100H.: (0.6)
                                                        Speed
                                                                     1/min : 300
                                                        C-rod trav.mm
                                                                             : 7.80...7.90
2nd speed 1/min: 300.0
Contr.-rod trav. m: 7.8...7.9
Del.quantity cm3/: 1.0...1.4
100H.: (0.9...1.5)
                                                        CONSTANT REGULATION
                                                                      1/min : 330...500
                                                        Speed
               cm3/:0.35
Dispersion
                                                        TORQUE CONTROL
               100H.: (0.5)
                                                        Torque-control curve - 1st version
                                                                     1/min : 1300
                                                        1st speed
                                                           C-rod trav.mm : 10.90...11.00
(B) Setting of injection pump with
                                                        2nd speed 1/min: 800
    externally-mounted governor
                                                           C-rod trav.mm : 11.60...11.80
                                                        3rd speed 1/min : 585
SLEEVE TRAVELS
1st speed 1/min: 1340
                                                           C-rod trav.mm : 11.80...12.00
  Sleeve travel mm: 8.50...8.70
              1/min: 1450
                                                        SWITCH-OVER POINT
2nd speed
  Sleeve travel mm: 9.30...9.70
                                                        Speed
                                                                      1/min : 230 (250)
3rd speed 1/min: 500
Sleeve travel mm: 2.70...3.30
4th speed 1/min: 300
                                                        FUEL-DELIVERY CHARACTERISTICS
                                                        Speed 1/min: 800
Del.quantity cm3/: 77.5...79.5
1000H.: (75.5...81.5)
Dispersion cm3/: 5.00
  Sleeve travel mm: 1.20...1.70
SLEEVE POSITION
                                                                      1000H.: (7.00)
1/min : 585
Control-lever position
                                                        Speed
              Degree: -1
               17min: 1350
                                                        Del.quantity cm3/: 74.5...77.5
Speed
                                                                      1000H.: (72.0...80.0)
Cont.-rod travelmm: 15.20...17.80
FULL-LOAD DELIV. AT FULL-LOAD STOP
                                                        STARTING FUEL DELIVERY
1st version
               1/min: 1300
Speed
Del.quantity cm3/: 80.0...82.0
                                                                      1/min : 100
                                                        Del.quantity cm3/: 80.0...90.0
              1000H.: (78.0...84.0)
                                                                      1000H.: (77.0...93.0)
Dispersion
              cm3/ : 3.50
                                                        Contr.-rod trav.mm: 19.00...21.00
              1000H.: (6.00)
                                                        LOW IDLE
HIGHEST RATED SPEED
1st version
                                                        Speed 1/min: 300
Contr.-rod trav.mm: 7.80...7.90
Control-lever
 position degrees: 50...58
J03
```

Del.quantity cm3/: 10.0...14.0 1000H.: (9.0...15.0) Dispersion cm3/: 3.50 1000H.: (5.00)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 A 2 : 17.12.86

Superceeded

Calibrating oil : ISO-4113

Combination no. : 0 403 466 103

Injection pump

Pump designation : PES6MW100/120RS1137

: 0 413 406 131 EP type number

Governor : RSV425...1100MW2A319 Governor design.

-2 Governer no. : 0 420 085 062

Customer-spec. information Customer : CUMMINS/US

: 6 CTA-8.3 L Engine

1st version kW : 188.0 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Test inj. tubing : 1 680 750 008

Outside diameter

x Wall thickness x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5- 3- 6- 2- 4 SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) SD mark cyl. no. : 1 BASIC SETTING 1/mi: 1100 1st speed Contr.-rod trav.mm: 14.10...14.20 Del.quantity cm3/: 14.2...14.4 100H.: (14.0...14.6) Dispersion cm3/:0.3100H.: (0.6) 2nd speed 1/min: 425.0 Contr.-rod trav. m: 7.8...7.9 Del.quantity cm3/: 1.9...2.3 100H.: (1.6...2.5) Dispersion cm3/: 0.3 100H.: (0.5) SLEEVE POSITION Control-lever position Degree: -3 17min: 800 Speed Cont.-rod travelmm: 0.30...1.00 FULL-LOAD DELIV. AT FULL-LOAD STOP 1st version Speed 1/min: 1100 Del.quantity cm3/: 142.0...144.0 1000H.: (140.0...146.0) Dispersion cm3/: 3.50 1000H.: (6.00) HIGHEST RATED SPEED 1st version Control-lever position degrees: 42...50 Testing: 1st c-rod trav.mm : 13.10 Speed 1/min : 1140...1150 2nd c-rod trav.mm : 4.00 1/min : 1215...1245 Speed 4th speed 1/min : 1300 C-rod trav.mm : 0.30...1.70 LOWEST RATED SPEED I

Control-lever position degrees: 18...26 Setting point H/out aux. spring Speed 1/min : 425 Contr.-rod trav.mm: 7.8 Testing: 1/min : 100 Speed C-rod trav.mm min : 19.00 Speed 1/min: 425 C-rod trav.mm: 7.80...7.90 TORQUE CONTROL Torque-control curve - 1st version

1st speed 1/min : 1100 C-rod trav.mm : 14.10...14.20 2nd speed 1/min: 750 C-rod trav.mm : 14.80...14.90

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min: 750
Del.quantity cm3/: 148.5...150.5
1000H.: (146.5...152.5)
Dispersion cm3/: 5.00

1000H.: (7.00)

STARTING FUEL DELIVERY

Speed 1/min : 100 Del.quantity cm3/: 125.0...145.0 1000H.: (122.0...148.0)

Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min: 425 Contr.-rod trav\_mm: 7.80...7.90 Del.quantity cm3/: 19.0...23.0 1000H.: (16.5...25.5) Dispersion cm3/: 3.50

1000H.: (5.50)

Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1 Starting/full-load transition speed from holding magnet = 500 1/min.

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    Contr.-rod trav.mm: 9.00...12.00
                                                    Cam sequence : 1- 5- 3- 6- 2- 4
Note inst. in remarks column
                   : CUM 8.3 A 3 : 09.03.87
Test sheet
                                                    SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Edition
Superceeded
Calibrating oil : ISO-4113
                                                    SD mark cyl. no. : 1
                   : 0 403 466 104
Combination no.
                                                    BASIC SETTING
Injection pump
Pump designation : PES6MW100/120RS1137
                                                    1st speed
                                                                 1/mi: 1050
EP type nümber
                   : 0 413 406 131
                                                    Contr.-rod trav.mm: 12.10...12.20
Governor
Governor design.
                  : RSV400...1050MW2A319
                                                    Del.quantity cm3/: 12.4...12.6
                     -3
                  : 0 420 085 074
Governer no.
                                                                  100H.: (12.2...12.8)
Customer-spec. information
                                                                  cm3/: 0.35
Customer
                  : CUMMINS/US
                                                    Dispersion
                   : 6 CTA-8.3 L
                                                                  100H.: (0.6)
Engine
1st version kW : 165.0
                                                                  1/min: 400.0
                                                    2nd speed
             1/min: 2100
                                                    Contr.-rod trav. m: 6.9...7.0
Speed
                                                    Del.quantity cm3/: 1.6...2.0
TEST BENCH REQUIREMENTS
                                                                  100H.: (1.3...2.2)
                                                                  cm3/: 0.35
100H.: (0.5)
                                                    Dispersion
Calibrating-oil inlet temp. °C
                   : 38...42
                                                    SLEEVE POSITION
Overflow valve
                                                    Control-lever position
                   : 1 417 413 047
                                                                 Degree: -3
                                                                  17min: 800
                                                    Cont.-rod travelmm: 0.30...1.00
Inlet press., bar : 1.50
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
Calibrating nozzle-holder
           : 1 688 901 017
 assembly
                                                    1st version
                                                                  1/min: 1050
                                                    Speed
Opening
                                                    Del.guantity cm3/: 124.0...126.0
pressure, bar
                  : 207...210
                                                                1000H.: (122.0...128.0)
cm3/ : 3.50
                                                    Dispersion
                  : 1 680 750 008
                                                                 1000H.: (6.00)
Test inj. tubing
                                                    HIGHEST RATED SPEED
Outside diameter
x Wall thickness
                                                    1st version
                   : 6.00x2.00x600
                                                    Control-lever
x Length mm
                                                     position degrees: 40...48
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    Testing:
                                                    1st c-rod trav.mm : 11.10
                                                    Speed 1/min: 1090...1100
2nd c-rod trav.mm: 4.00
    per values
                                                      Speed 1/min: 1150...1180
th speed 1/min: 1250
START OF DELIVERY
Test pressure, bar: 30...32
                                                    4th speed
                                                      C-rod trav.mm : 0.30...1.70
Prestroke min
                  : 3.50...3.60
                   : (3.45...3.65)
                                                    LOWEST RATED SPEED I
J07
```

Control-lever position degrees: 19...27 Setting point w/out aux. spring 1/min : 400 Contr.-rod trav.mm: 6.95 Testing: 1/min : 100 Speed C-rod trav.mm min: 19.00 Speed 1/min : 400 : 6.90...7.00 C-rod trav.mm SET IDLE AUXILIARY SPRING Contr.-rod trav.mm: 4.00 TORQUE CONTROL Torque-control curve - 1st version 1/min : 1050 1st speed C-rod trav.mm : 12.10...12.20 2nd speed 1/min: 750 C-rod trav.mm : 14.20...14.30 FUEL-DELIVERY CHARACTERISTICS 1/min : 750 Speed Del.quantity cm3/: 151.0...153.0 1000H.: (149.0...155.0) Dispersion cm3/: 5.00 1000H.: (7.00) STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 125.0...145.0 1000H.: (122.0...148.0) Contr.-rod trav.mm: 19.00...21.00 LOW IDLE 1/min : 400 Speed Contr.-rod trav.mm: 6.90...7.00 Del.quantity cm3/: 16.0...20.0 1009H.: (13.5...22.5) cm3/: 3.50 Dispersion 1000H.: (5.50) Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1 Starting/full-load transition speed from holding magnet = 500 1/min.

```
Contr.-rod trav.mm: 9.00...12.00
Cam sequence : 1- 5- 3- 6- 2- 4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
Test sheet
                   : CUM 8,3 A 4
                                                     SD ang. spacing CS: 0-60-120-180-240-300 Tolerance +- : 0.50 (0.75)
                   : 13.05.87
Edition
Superceeded
Calibrating oil : ISO-4113
                                                      SD mark cyl. no. : 1
                   : 0 403 466 105
Combination no.
                                                      BASIC SETTING
Injection pump
Pump designation : PES6MW100/120RS1137
                                                      1st speed
                                                                     1/mi: 1100
                    : 0 413 406 131
EP type number
                                                      Contr.-rod trav.mm: 12.60...12.70
Governor
                   : RSV400...1100MW2A319
Governor design.
                                                     Del.quantity cm3/: 13.2...13.4
                    : 0 420 085 080
Governer no.
                                                                    100H.: (13.0...13.6)
Customer-spec. information
                                                                    cm3/:0.3
Customer
                   : CUMMINS/US
                                                      Dispersion
                   : 6 CTA-8.3 L
                                                                    100H.: (0.6)
Engine
                                                                    1/min: 400.0
1st version kW : 171.5
                                                      2nd speed
                                                     Contr.-red trav. m: 7.0...7.1
Speed
              1/min: 2200
                                                     Del.quantity cm3/: 1.6...2.0
100H:: (1.3...2.2)
Dispersion cm3/: 0.3
100H:: (0.5)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                    : 38...42
                                                      SLEEVE POSITION
Overflow valve
                                                     Control-lever position
                    : 1 417 413 047
                                                                   Degree: -3
                                                                   17min: 800
                                                     Cont.-rod travelmm: 0.30...1.00
Inlet press., bar : 1.50
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
Calibrating nozzle-holder
                  : 1 688 901 017
 assembly
                                                     1st version
                                                     Speed
                                                                    1/min: 1100
Opening
                                                     Del.quantity cm3/: 132.5...134.5
 pressure, bar : 207...210
                                                                   1000H.: (130.5...136.5)
                                                                  cm3/ : 3.50
1000H.: (6.00)
                                                     Dispersion
Test inj. tubing : 1 680 750 008
                                                     HIGHEST RATED SPEED
Outside diameter
x Wall thickness
                                                     1st version
                   : 6.00x2.00x600
                                                     Control-lever
x Length mm
                                                      position degrees: 40...48
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                     Testing:
                                                     1st c-rod trav.mm : 11.60
Speed 1/min : 1140...1150
    per values
                                                     2nd c-rod trav.mm : 4.00
                                                                  1/min : 1200...1230
                                                       Speed,
START OF DELIVERY
                                                                 1/min : 1300
Test pressure, bar: 30...32
                                                      4th speed
                                                                         : 0.30...1.70
                                                        C-rod trav.mm
Prestroke mm
                  : 3.50...3.60
                    : (3.45...3.65)
                                                     LOWEST RATED SPEED I
J09
```

```
Control-lever
 position degrees: 16...24
Setting point w/out aux. spring
             1/min : 400
Contr.-rod trav.mm: 7.0
Testing:
              1/min : 100
Speed
C-rod trav.mm min : 19.00
             1/min : 400
nm : 7.00...7.10
Speed
C-rod trav.mm
SET IDLE AUXILIARY SPRING
Contr.-rod trav.mm: 4.00
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1100
C-rod trav.mm : 12,60...12.70
2nd speed 1/min : 750_
  C-rod trav.mm : 13.70...13.80
FUEL-DELIVERY CHARACTERISTICS
             1/min : 750
Speed
Del.quantity cm3/: 141.0...143.0
              1000H.: (139.0...145.0)
cm3/: 5.00
Dispersion
              1000Ha: (7.00)
STARTING FUEL DELIVERY
             1/min : 100
Speed
Del.quantity cm3/: 125.0...145.0
1000H.: (122.0...148.0)
Contr.-rod trav.mm: 19.00...21.00
LOW IDLE
              1/min : 400
Speed
Contr.-rod trav.mm: 7.00...7.10
Del.quantity cm3/: 16.0...20.0
1000H.: (13.5...22.5)
Dispersion cm3/: 3.50
1000H.: (5.50)
Remarks:
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1
Starting/full-load transition speed
from holding magnet = 500 1/min.
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                            : 1-5- 3- 6- 2- 4
                                                        Cam sequence
Note inst. in remarks column
                                                        SD ang. spacing ^{0}CS: 0-60-120-180-240-300 Tolerance + - ^{0}: 0.50 (0.75)
                    : MB 5.7 A 18
: 13.05.87
Test sheet
Edition
Superceeded
Calibrating oil
                    : ISO-4113
                                                        BASIC SETTING
                    : 0 403 474 002
Combination no.
                                                        1st speed
                                                                      1/mi: 1200
Injection pump
                                                        Contr.-rod trav.mm: 11.70...11.80
Pump designation : PES4MW100/720R$1127
                                                        Del.quantity cm3/ : 7.8...8.0
                    : 0 413 404 103
EP type number
Governor
Governor design.
                    : RSV350...1200MW0A322
: 0 420 085 075
                                                                       100H.: (7.6...8.2)
Governer no.
                                                        Dispersion
                                                                       cm3/:0.3
Customer-spec. information
                                                                       100H.: (0.6)
Customer
                    : DB
                                                        2nd speed 1/min: 350.0
Contr.-rod trav. m: 6.8...7.4
Del.quantity cm3/: 0.8...1.0
100H.: (0.6...1.4)
                    : 0M364A
Engine
1st version kW
                  : 66.0
Speed
              1/min: 2400
                                                                       cm3/:0.3
                                                        Dispersion
                                                                       100H.: (0.5)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                                                        SLEEVE POSITION
                                                        Control-lever position
                    : 38...42
                                                                     Degree: -3
1/min: 800
Overflow valve
                                                        Speed
                     : 1 417 413 047
                                                        Cont.-rod travelmm: 0.30...1.00
                                                        FULL-LOAD DELIV, AT FULL-LOAD STOP
Inlet press., bar : 1.50
Calibrating nozzle-holder
                                                        1st version
                                                        Speed 1/min: 1200
Del.quantity cm3/: 78.0...80.0
1000H.: (76.0...82.0)
Dispersion cm3/: 3.50
                   : 0 681 343 009
 assembly
Opening
pressure, bar : 172...175
                                                                      1000H.: (6.00)
                                                        HIGHEST RATED SPEED
Test inj. tubing : 1 680 750 008
                                                        1st version
                                                        Control-lever
Outside diameter
x Wall thickness
                                                         position degrees: 102...110
                   : 6.00x2.00x600
x Length mm
                                                        Testing:
                                                        1st c-rod trav.mm : 10.70
(A) Injection pump setting values
                                                                    1/min : 1240...1245
    Insp. values in parentheses
Set constant delivery quant.
                                                          Speed
                                                        2nd c-rod trav.mm : 4.00
    per values
                                                                    1/min : 1322...1335
                                                          Speed
                                                        3rd c-rod trav.mm : 4.00
                                                                    1/min : 1345...1375
1/min : 1450
START OF DELIVERY
                                                          Speed
Test pressure, bar: 30...32
                                                        4th speed
                                                                            : 0.30...1.70
                                                          C-rod trav.mm
                     : 3.70..,3.80
Prestroke mm
                                                        LOWEST RATED SPEED I
                    : (3.65...3.85)
Contr.-rod trav.mm: 9.00...12.00
                                                        Setting point w/out aux. spring
J11
```

```
1/min : 350
Speed
Contr.-rod trav.mm: 7.1
Testing:
              1/min : 100
Speed
C-rod trav.mm min : 19.00
Speed
             1/min : 350
C-rod trav.mm
                    : 6.80...7.40
C-rod trav.mm
                     : 2.00
             1/min : 500...560
Speed
TORQUE CONTROL
Torque-control curve - 1st version 1st speed 1/min : 1200
  C-rod trav.mm : 11.70...11.80
            1/min : 600
2nd speed
  C-rod trav.mm : 12.60...12.80
3rd speed 1/min: 700
  C-rod trav.mm : 12.60...12.80
4th speed 1/min: 950
  C-rod trav.mm : 12.20...12.40
FUEL-DELIVERY CHARACTERISTICS
             1/min : 600
Speed
Del.quantity cm3/: 68.0...70.0
              1000H.: (66.0...72.0)
             cm3/: 5.00
1000H.: (7.00)
1/min: 900
Dispersion
Speed
Del.quantity em3/: 77.0...79.0
1000H:: (75.0...81.0)
Dispersion cm3/: 5.00
1000H:: 7.00
STARTING FUEL DELIVERY
LOW IDLE
              1/min : 350
Speed
Contr.-rod trav.mm: 6.80...7.40
Del.quantity cm3/: 8.0...10.0
1000H.: (6.0...14.0)
Dispersion cm3/: 3.50
             1000H.: (5.00)
Remarks:
```

```
Cam sequence : 1-5- 3- 6- 2- 4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                    SD ang. spacing ^{0}CS: 0-60-120-180-240-300 Tolerance + - ^{1}: 0.50 (0.75)
                   : MB 6,0 D 29
Test sheet
                   : 13.05.87
Edition
Superceeded
                  : ISO-4113
                                                    BASIC SETTING
Calibrating oil
Combination no.
                   : 0 403 476 027
                                                    1st speed 1/mi: 1300
Injection pump
                                                    Contr.-rod trav.mm: 10.70...10.80
Pump designation : PES6MW100/720RS1144
                   : 0 413 406 138
EP type number
                                                    Del.quantity cm3/ : 8.0...8.2
Governor
Governor design: : RSV350...1300MW0A316
Governer no. : 0 420 085 047
                                                                  100H.: (7.8...8.4)
                                                                  cm3/:0.3
                                                    Dispersion
Customer-spec. information
                                                                  100H.: (0.6)
Customer
                   : DB
Engine
                   : 0M366A
                                                                  1/min: 350.0
                                                    2nd speed
                                                    Contr.-rod trav. m: 7.0...7.6
                                                    Del.quantity cm3/: 1.0...1.2
100H:: (0.8...1.4)
Dispersion cm3/: 0.3
100H:: (0.5)
1st version kW : 125.0
Speed
              1/min: 2600
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                                                    SLEEVE POSITION
                                                    Control-lever position
                   : 38...42
                                                                 Degree: -3
1/min: 800
Overflow valve
                                                    Speed
                                                    Cont.-rod travelmm: 0.30...1.00
                   : 1 417 413 000
Inlet press., bar : 1.50
                                                    Governor-spring reload
                                                    Notch setting x : 4.00
Calibrating nozzle-holder
                  : 0 681 343 009
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
Opening
                                                    1st version
pressure, bar : 172...175
                                                    Speed
                                                                  1/min: 1300
                                                    Del.quantity cm3/: 80.0...82.0
                                                                 1000H.: (78.0...84.0)
                                                    Dispersion cm3/: 3.50
Test inj. tubing : 1 680 750 008
                                                                 1000H.: (6.00)
Outside diameter
                                                    HIGHEST RATED SPEED
x Wall thickness
                                                    1st version
                  : 6.00x2.00x600
x Length mm
                                                    Control-lever
                                                     position degrees: 54...61
(A) Injection pump setting values
    Insp. values in parentheses
    Set constant delivery quant.
                                                    Testing:
                                                    1st c-rod trav.mm : 9.70
    per values
                                                      Speed 1/min: 1340...1345
                                                    2nd c-rod trav.mm: 4.00
START OF DELIVERY
                                                    Speed 1/min: 1380...1393
3rd c-rod trav.mm: 4.00
Test pressure, bar: 30...32
Prestroke mm
                   : 3.70...3.80
                                                      Speed
                                                                1/min : 1400...1430
                                                    4th speed 1/min: 1450
                   : (3.65...3.85)
                                                      C-rod trav.mm : 0.30...1.70
Contr.-rod trav.mm: 9.00...12.00
J13
```

```
LOWEST RATED SPEED I
Control-lever
 position degrees: 12...20
-rod trav.mm : 2.00
C-rod trav.mm
             1/min : 445...505
Speed
SET IDLE AUXILIARY SPRING
Speed
              1/min : 350
TORQUE CONTROL
Torque-control curve - 1st version
            1/min : 1300
1st speed
  C-rod trav.mm : 10.70...10.80 d speed 1/min : 700
2nd speed
  C-rod trav.mm : 12.30...12.40
3rd speed 1/min: 825
  C-rod trav.mm : 11.90...12.10
FUEL-DELIVERY CHARACTERISTICS
Speed
              1/min : 700
Del.quantity cm3/: 80.0...82.0

1000H.: (78.0...84.0)

Dispersion cm3/: 5.00

1000H.: (7.00)

Speed 1/min: 825
Del.quantity cm3/: 80.5...82.5
              1000H.: (77.5...85.5)
STARTING FUEL DELIVERY
Speed
              1/min : 100
Del.quantity cm3/: 80.0...90.0
              1000H.: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00
LOW IDLE
Speed 1/min: 350
Contr.-rod trav.mm: 7.00...7.60
Del.quantity cm3/: 10.0...12.0
              1000H.: (8.0...14.0)
              cm3/: 3.50
1000H.: (5.00)
Dispersion
Remarks:
```

```
Contr.-rod trav.mm: 9.00...12.00
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
Test sheet
                  : MB 6.0 D 30
: 27.03.87
                                                    SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75)
Edition
Superceeded
                  : 11.85
Calibrating oil : ISO-4113
                                                    BASIC SETTING
                   : 0 403 476 029
Combination no.
                                                                   1/mi: 1200
                                                    1st speed
Injection pump
Pump designation : PES6MW100/720RS1124
                                                    Contr.-rod trav.mm: 9.80...9.90
EP type number
                   : 0 413 406 118
                                                    Del.quantity cm3/ : 7.6...7.8
Governor
Governor design. : RSV350...1200MW1A316
                                                                  100H.: (7.4...8.0)
                  : 0 420 085 048
Governer no.
                                                    Dispersion
                                                                  cm3/:0.3
Customer-spec. information
Customer
                                                                  100H.: (0.6)
                   : 0M366A
                                                                  1/min: 350.0
Engine
                                                    2nd speed
                                                    Contr.-rod trav. m: 6.4...7.0
                                                    Del.quantity cm3/: 1.0...1.2
100H.: (0.8...1.4)
Dispersion cm3/: 0.3
1st version kW : 110.0
Speed
              1/min: 2400
                                                                  100H.: (0.5)
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. °C
                                                    SLEEVE POSITION
                   : 38...42
                                                    Control-lever position
                                                                 Degree: -3
1/min: 800
Overflow valve
                                                    Cont.-rod travelmm: 0.30...1.00
                   : 1 417 413 000
                                                    Governor-spring reload
Inlet press., bar : 1.50
                                                    Notch setting x : 4.00
Calibrating nozzle-holder
           : 0 681 343 009
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
                                                    1st version
Opening
                                                                  1/min: 1200
pressure, bar : 172...175
                                                    Speed
                                                    Del.quantity cm3/: 76.0...78.0
                                                                1000H.: (74.0...80.0)
cm3/ : 3.50
1000H.: (6.00)
Test inj. tubing : 1 680 750 008
                                                    Dispersion
Outside diameter
                                                    HIGHEST RATED SPEED
x Wall thickness
                   : 6.00x2.00x600
x Length mm
                                                    1st version
                                                    Control-lever
                                                     position degrees: 52...60
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    Testing:
    per values
                                                    1st c-rod trav.mm : 8.80
                                                      Speed 1/min: 1240...1245
                                                    2nd c-rod trav.mm : 4.00
START OF DELIVERY
                                                                1/min : 1280...1293
                                                      Speed
Test pressure, bar: 30...32
                                                    3rd c-rod trav.mm : 4.00
                                                      Speed 1/min: 1300...1330
Prestroke min
              : 3.70...3.80
                                                    4th speed
                                                                 1/min : 1360
                   : (3.65...3.85)
J15
```

```
: 0.30...1.70
  C-rod trav.mm
LOWEST RATED SPEED I
Control-lever
 position degrees: 12...20
C-rod trav.mm
                  : 2.00
              1/min : 465...525
Speed
SET IDLE AUXILIARY SPRING
Speed 1/min: 350
Contr.-rod trav.mm: 6.40...7.00
TORQUE CONTROL
Torque-control curve - 1st version
1st speed
             1/min : 1150
                   : 9.90...10.10
  C-rod trav.mm
2nd speed 1/min: 750
  C-rod trav.mm : 10.60...10.70
3rd speed 1/min: 950
                     : 10.30...10.40
  C-rod trav.mm
FUEL-DELIVERY CHARACTERISTICS
              1/min : 600
Speed
Del.quantity cm3/: 66.0...68.0
              1000H.: (64.0...70.0)
               cm3/ : 5.00
Dispersion
              1000H.: (7.00)
1/min : 900
Speed
Del.quantity cm3/: 76.0...78.0
1000H.: (73.0...81.0)
STARTING FUEL DELIVERY
              1/min : 100
Speed
Del.quantity cm3/: 80.0...90.0
1000H.: (77.0...93.0)
LOW IDLE
              1/min : 350
Speed
Contr.-rod trav.mm: 6.40...7.00
Del.quantity cm3/: 10.0...12.0
1000H.: (8.0...14.0)
Dispersion cm3/: 3.50
1000H.: (5.00)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                        Contr.-rod trav.mm: 9.00...12.00
                                                        Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
                    : PEN 6.1 P
: 09.03.87
Test sheet
                                                        SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Edition
Superceeded
Calibrating oil
                    : ISO-4113
                                                        BASIC SETTING
Combination no.
                    : 0 403 476 046
                                                                        1/mi: 1000
                                                        1st speed
Injection pump
                                                        Contr.-rod trav.mm: 10.90...11.00
Pump designation : PES6MW100/320RS1132
EP type number
                     : 0 413 406 124
                                                        Del.quantity cm3/: 8.7...8.9
Governor
Governor design.
                     : RSV325...1400MW2A314
                                                                       100H.: (8.5...9.1)
                      -1
                     : 0 420 085 053
Governer no.
                                                                       cm3/:0.3
                                                        Dispersion
Customer-spec. information
                    : VOLVO-PENTA
                                                                       100H.: (0.6)
Customer
                                                        2nd speed 1/min: 325.0

Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/: 1.2...1.6

100H.: (0.9...1.8)

Dispersion cm3/: 0.3
Engine
                     : TD 61 A
1st version kW : 147.0
               1/min: 2800
Speed
TEST BENCH REQUIREMENTS
                                                                       100H.: (0.5)
Calibrating-oil inlet temp. °C
                                                        SLEEVE POSITION
                     : 38...42
                                                        Control-lever position
                                                              Degree: 3
1/min: 800
Overflow valve
                     : 1 417 413 000
                                                        Cont.-rod travelmm: 0.30...1.00
                                                        FULL-LOAD DELIV. AT FULL-LOAD STOP
Inlet press., bar : 1.50
                                                        1st version
Calibrating nozzle-holder
                                                        Speed 1/min: 1000
Charge press. hPa: 900
Del.quantity cm3/: 87.0...89.0
1000H.: (85.0...91.0)
Dispersion cm3/: 3.50
            : 0 681 343 009
 assembly
Opening
 pressure, bar : 172...175
                                                                   1000H.: (6.00)
Test inj. tubing : 1 680 750 014
                                                        HIGHEST RATED SPEED
Outside diameter
                                                        1st version
x Wall thickness
                                                        Control-lever
                    : 2.00x6.00x600
                                                         position degrees: 54...62
x Length mm
(A) Injection pump setting values
                                                        Testing:
    Insp. values in parentheses
Set constant delivery quant.
                                                        1st c-rod trav.mm : 10.00
                                                          Speed 1/min: 1440...1450
                                                        2nd c-rod trav.mm : 4.00
    per values ____
                                                        Speed 1/min: 1520...1540
4th speed 1/min: 1650
START OF DELIVERY
Test pressure, bar: 30...32
                                                          C-rod trav.mm : 0.30...1.70
                    : 2.90...3.00
                                                        LOWEST RATED SPEED I
Prestroke min
                    : (2.85...3.05)
                                                        Control-lever
J17
```

```
position degrees: 18...26
Setting point w/out aux. spring
Speed
            1/min : 325
Contr.-rod trav.mm: 5.5
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 19.00
            1/min : 325
Speed
                    : 5.50...5.60
C-rod trav.mm
 compensator (LDA,ADA,ALDA)
1st version
Setting
             1/min : 500
Speed
                  : 220
Pressure
             hPa
Contr.-rod trav.mm: 10.00...10.10
Measurement
             1/min : 500
Speed
1st pressure hPa
  C-rod trav.mm
                    : 9.80...9.90
2nd pressure hPa
                   : 330
  C-rod trav.mm
                    : 10.20...10.50
                   : 900
3rd pressure hPa
  C-rod trav.mm
                    : 10.90...11.00
FUEL-DELIVERY CHARACTERISTICS
Charge press. hPa : -
             1/min : 500
Speed
Del.quantity cm3/: 50.0...52.0
             1000H.: (48.0...54.0)
STARTING FUEL DELIVERY
             1/min : 100
Speed
Del.quantity cm3/: 140.0...160.0
1000H.: (137.0...163.0)
Contr.-rod trav.mm: 19.00...21.00
LOW IDLE
             1/min : 325
Speed
Contr.-rod trav.mm: 6.00...6.10
Del.quaritity cm3/: 12.0...16.0
             1000H.: (9.5...18.5)
cm3/: 3.50
1000H.: (5.50)
Dispersion
Remarks:
```

Contr.-rod trav.mm: 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Cam sequence : 1- 5- 3- 6- 2- 4 Note insta in remarks column : MB 6.0 D 22 : 09.03.87 Test sheet SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Edition Superceeded Calibrating oil : ISO-4113 BASIC SETTING : 0 403 476 054 Combination no. 1st speed 1/mi: 1200 Injection pump Contr.-rod trav.mm: 11.80...11.90 Pump designation : PES6MW100/720RS1139 EP type number : 0 413 406 134 Del.quantity cm3/ : 8.3...8.5 Governor Governor design. : RSV350...1200MW1A316 100H.: (8.1...8.7) -2 : 0 420 085 076 Governer no. Dispersion cm3/: 0.35Customer-spec. information 100H.: (0.6) Customer 2nd speed 1/min: 350.0 Contr.-rod trav m: 7.0...7.6 : 0M366A Engine Del.quantity cm3/: 1.0...1.2 100H.: (0.7...1.5) 1st version kW : 115.0 1/min: 2400 Speed cm3/: 0.35Dispersion 100H.: (0.5) TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. C SLEEVE POSITION : 38...42 Control-lever position Degree: -3 17min: 800 Overflow valve Cont.-rod travelmm: 0.30...1.00 : 1 417 413 000 Inlet press., bar : 1.50 Governor-spring reload Notch setting x : 3.00 Calibrating nozzle-holder : 0 681 343 009 FULL-LOAD DELIV. AT FULL-LOAD STOP assembly 1st version Opening 1/min: 1200 pressure, bar : 172...175 Speed Del.quantity cm3/: 83.0...85.0 1000H.: (81.0...87.0) Dispersion cm3/: 3.50 1000H.: (6.00) Test inj. tubing : 1 680 750 008 Outside diameter HIGHEST RATED SPEED x Wall thickness : 6.00X2.00X600 1st version x Length mm Control-lever position degrees: 64...72 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. Testing: 1st c-rod trav.mm : 10.80 per values Speed 1/min: 1240...1245 2nd c-rod trav.mm : 4.00 START OF DELIVERY 1/min : 1285...1298 Speed Test pressure, bar: 30...32 3rd c-rod trav.mm : 4.00 Speed 1/min : 1335...1365 Prestroke mm *:* 3.70...3.80 4th speed 1/min: 1450 : (3.65...3.85) J19

```
C-rod trav.mm : 0.30...1.70
LOWEST RATED SPEED I
Setting point w/out aux. spring
             1/min : 350
Speed
Contr.-rod @rav.mm: 7.3
Testing:
              1/min : 100
Speed
C-rod trav.mm min: 19.00
              1/min : 350
Speed
                  : 7.00...7.60
: 2.00
C-rod trav.mm
C-rod trav.mm
Speed
             1/min : 515...585
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
 C-rod trav.mm : 11.80...11.90
2nd speed 1/min: 750
C-rod trav.mm : 12.30...12.40
3rd speed 1/min : 1000
  C-rod trav.mm : 11.90...12.10
FUEL-DELIVERY CHARACTERISTICS
              1/min : 750
Speed
Del.quantity cm3/: 81.0...83.0
              1000H: (79.0...85.0)
cm3/: 5.00
1000H: (7.00)
Dispersion
STARTING FUEL DELIVERY
Speed
              1/min : 100
Del.quantity cm3/: 80.0...90.0
1000H.: (77.0...93.0)
LOW IDLE
              1/min : 350
Speed
Contr.-rod trav.mm: 7.00...7.60
Del.quantity cm3/: 10.0...12.0
1000H.: (7.0...15.0)
Dispersion cm3/: 3.50
1000H.: (5.00)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                         Contr.-rod trav.mm: 9.00...12.00
                                                         Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
                     : MB 6.0 D 31
: 13.05.87
Test sheet
                                                         SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Edition
Superceeded
Calibrating oil
                    : ISO-4113
                                                         BASIC SETTING
                     : 0 403 476 054
Combination no.
                                                         1st speed
                                                                         1/mi: 1200
Injection pump
Pump designation
                    : PES6MW100/720RS1144
                                                         Contr.-rod trav.mm: 11.80...11.90
EP type number
                     : 0 413 406 138
Governor
                                                         Del.quantity cm3/: 8.3...8.5
Governor design.
                     : RSV350...1200MW1A316
                                                                        100H.: (8.1...8.7)
                       -2
                     : 0 420 085 076
Governer no.
                                                         Dispersion
                                                                        cm3/:0.3
Customer-spec. information
Customer
                                                                        100H.: (0.6)
                                                         2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.0...7.6

Del.quantity cm3/: 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/: 0.3
                     : 0M366A
Engine
1st version kW : 115.0
               1/min: 2400
Speed
TEST BENCH REQUIREMENTS
                                                                        100H.: (0.5)
Calibrating-oil inlet temp. OC
                                                         SLEEVE POSITION
                     : 38...42
inlet temp.
                                                         Control-lever position
                                                                       Degree: -3
Overflow valve
                                                                        17min: 800
                     : 1 417 413 000
                                                         Cont.-rod travelmm: 0.30...1.00
Inlet press., bar : 1.50
                                                         Governor-spring reload
                                                         Notch setting x : 3.00
Calibrating nozzle-holder
                : 0 681 343 009
                                                         FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
Opening
                                                         1st version
                                                         Speed 1/min: 1200
Del.quantity cm3/: 83.0...85.0
1000H.: (81.0...87.0)
Dispersion cm3/: 3.50
 pressure, bar : 172...175
Test inj. tubing : 1 680 750 008
                                                                       1000H.: (6,00)
Outside diameter
x Wall thickness
                                                         HIGHEST RATED SPEED
                     : 6.00x2.00x600
x Length mm
                                                         1st version
                                                         Control-lever
(A) Injection pump setting values
                                                          position degrees: 64...72
    Insp. values in parentheses
Set constant delivery quant.
                                                         Testing:
    per values
                                                         1st c-rod trav.mm : 10.80
                                                                      1/min : 1240...1245
                                                           Speed
START OF DELIVERY
                                                         2nd c-rod trav.mm : 4.00
Test pressure, bar: 30...32
                                                                     1/min : 1285...1298
                                                           Speed
                                                         3rd c-rod trav.mm : 4.00
Speed 1/min : 1335...1365
4th speed 1/min : 1450
               : 3.70...3.80
Prestroke min
                     : (3.65...3.85)
J21
```

```
C-rod trav.mm : 0.30...1.70
LOWEST RATED SPEED I
Setting point w/out aux. spring
             1/min : 350
Speed
Contr.-rod trav.mm: 7.3
Testing:
Speed
               1/min : 100
C-rod trav.mm min : 19.00
              1/min : 350
nm : 7.00...7.60
Speed
C-rod trav.mm
                      : 2.00
C-rod trav.mm
              1/min : 515...585
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
  G-rod trav.mm : 11.80...11.90
2nd speed 1/min: 750
C-rod trav.mm : 12.30...12.40
3rd speed 1/min : 1000
  C-rod trav.mm : 11.90...12.10
FUEL-DELIVERY CHARACTERISTICS
              1/min : 750
Speed
Del.quantity cm3/: 81.0...83.0
1000H.: (79.0...85.0)
Dispersion cm3/: 5.00
1000H.: (7.00)
STARTING FUEL DELIVERY
Speed
              1/min : 100
Del.quantity cm3/: 80.0...90.0
1000H:: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00
LOW IDLE
Speed 1/min: 350
Contr.-rod trav.mm: 7.00...7.60
Del.quantity cm3/: 10.0...12.0
1000H.: (7.0...15.0)
Dispersion cm3/: 3.50
              1000H.: (5.00)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                       Contr.-rod trav.mm: 9.00...12.00
                                                       Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
                    : MB 6.0 D 23
: 09.03.87
Test sheet
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Edition
Superceeded
Calibrating oil : ISO-4113
                                                      BASIC SETTING
Combination no.
                   : 0 403 476 055
                                                       1st speed
                                                                     1/mi: 1200
Injection pump
Pump designation : PES6MW100/720RS1139
                                                       Contr.-rod trav.mm: 9.60...9.70
EP type number
                    : 0 413 406 134
                                                       Del.quantity cm3/ : 6.6...6.8
Governor
Governor design.
                    : RSV350...1200MW1A316
                      -3
                                                                     100H.: (6.4...7.0)
                    : 0 420 085 077
Governer no.
                                                                     cm3/: 0.35
                                                      Dispersion
Customer-spec. information
Customer
                                                                     100H.: (0.6)
Engine
                    : 0M366A
                                                                     1/min: 350.0
                                                      2nd speed
                                                      Contr.-rod trav. m: 6.3...6.9
                                                      Del.quantity cm3/: 1.0...1.2
100H.: (0.7...1.5)
1st version kW : 92.0
Speed
              1/min: 2400
                                                                     cm3/: 0.35
100H.: (0.5)
                                                      Dispersion
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. OC
                                                      SLEEVE POSITION
                    : 38...42
                                                      Control-lever position
                                                                   Degree: -3
1/min: 800
Overflow valve
                    : 1 417 413 000
                                                      Cont.-rod travelmm: 0.30...1.00
Inlet press., bar: 1.50
                                                      Governor-spring reload
                                                      Notch setting x : 15.00
Calibrating nozzle-holder
             : 0 681 343 009
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
Opening
                                                      1st version
pressure, bar : 172...175
                                                                     1/min: 1200
                                                      Speed
                                                      Del.quantity cm3/: 66.0...68.0
1000H:: (64.0...70.0)
Dispersion cm3/: 3.50
Test inj. tubing
                   : 1 680 750 008
                                                                    1000H.: (6.00)
Outside diameter x Wall thickness
                                                      HIGHEST RATED SPEED
                   : 6.00x2.00x600
x Length mm
                                                      1st version
                                                      Control-lever
(A) Injection pump setting values
                                                       position degrees: 58...66
    Insp. values in parentheses
Set constant delivery quant.
                                                      Testing:
    per values ____
                                                      1st c-rod trav.mm : 9.10
                                                      Speed 1/min: 1240...1245
2nd c-rod trav.mm: 4.00
START OF DELIVERY
                                                      Speed 1/min: 1263...1276
3rd c-rod trav.mm: 4.00
Test pressure, bar: 30...32
                 : 3.70...3.80
                                                                  1/min : 1290...1320
                                                         Speed
Prestroke min
                    : (3.65...3.85)
                                                      4th speed
                                                                   1/min : 1450
```

```
C-rod trav.mm : 0.30...1.70
5th speed 1/min: 1240...1255
  C-rod trav.mm
                    : 8.60
LOWEST RATED SPEED I
Setting point w/out aux. spring
             1/min : 350
Speed
Contr.-rod trav.mm: 6.6
Testing:
             1/min : 100
Speed
C-rod trav.mm min : 19.00
Speed 1/min : 350
C-rod trav.mm
                  : 6.30...6.90
                   : 2.00
C-rod trav.mm
             1/min : 415...475
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
                  : 10.10...10.20
  C-rod trav.mm
2nd speed 1/min: 850
  C-rod trav.mm : 10.70...10.90
3rd speed 1/min: 950
  C-rod trav.mm : 10.40...10.60
FUEL-DELIVERY CHARACTERISTICS
             1/min : 800
Speed
Del.quantity cm3/: 68.0...70.0
1000H: (66.0...72.0)
Dispersion cm3/: 5.00
             1000H.: (7.00)
STARTING FUEL DELIVERY
Speed
             1/min : 100
Del.quantity cm3/: 80.0...90.0
             1000H.: (77.0...93.0)
LOW IDLE
             1/min : 350
Speed
Contr.-rod trav.mm: 6.30...6.90
Del.quantity cm3/: 10.0...12.0
1000H.: (7.0...15.0)
Dispersion cm3/: 3.50
             1000H.: (5.00)
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Contr.-rod trav.mm: 9.00...12.00
                                                     Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
Test sheet
                   : MB 6,0 D 32
                                                     SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                   : 05.06.87
Edition
Superceeded
Calibrating oil : ISO-4113
                                                     BASIC SETTING
Combination no.
                   : 0 403 476 055
                                                     1st speed
                                                                    1/mi: 1200
Injection pump
Pump designation : PES6MW100/720RS1144
                                                     Contr.-rod trav.mm: 9.60...9.70
                   : 0 413 406 138
EP type number
Governor
                                                     Del.quantity cm3/: 6.6...6.8
                   : RSV350...1200MW1A316
Governor design.
                     -3
                                                                   100H.: (6.4...7.0)
                   : 0 420 085 077
Governer no.
                                                                   cm3/:0.3
                                                     Dispersion
Customer-spec. information
Customer
                                                                   100H.: (0.6)
                   : 0M366A
                                                                   1/min: 350.0
Engine
                                                     2nd speed
                                                    Contr.-rod trav. m: 6.3...6.9
Del.quantity cm3/: 1.0...1.2
100H.: (0.7...1.5)
1st version kW : 92.0
Speed
              1/min: 2400
                                                                   cm3/: 0.3
100H.: (0.5)
                                                     Dispersion
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. <sup>D</sup>C
                                                     SLEEVE POSITION
                   : 38...42
                                                     Control-lever position
                                                                  Degree: -3
1/min: 800
Overflow valve
                    : 1 417 413 000
                                                     Cont.-rod travelmm: 0.30...1.00
                                                     Governor-spring reload
Inlet press., bar : 1.50
                                                    Notch setting x : 15.00
Calibrating nozzle-holder
           : 0 681 343 009
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
                                                     1st version
Opening
 pressure, bar : 172...175
                                                                   1/min: 1200
                                                     Speed
                                                    Del.quantity cm3/: 66.0...68.0
1000H.: (64.0...70.0)
                                                                 cm3/ : 3.50
Test inj. tubing : 1 680 750 008
                                                     Dispersion
                                                                  1000H.: (6.00)
Outside diameter
x Wall thickness
                                                    HIGHEST RATED SPEED
x Length mm
                   : 6.00x2.00x600
                                                    1st version
                                                    Control-lever
                                                     position degrees: 58...66
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    Testing:
    per values ____
                                                     1st c-rod trav.mm : 9.10
                                                                1/min : 1240...1245
                                                       Speed
                                                    2nd c-rod trav.mm : 4.00
START OF DELIVERY
Test pressure, bar: 30...32
                                                       Speed
                                                                 1/min : 1263...1276
                                                    3rd c-rod trav.mm: 4.00
                                                                1/min : 1290...1320
Prestroke mm
                  : 3.70...3.80
                                                       Speed
                   : (3.65...3.85)
                                                     4th speed
                                                                 1/min : 1450
J25
```

```
C-rod trav.mm : 0.30...1.70
5th speed 1/min: 1240...1255
  C-rod trav.mm : 8.60
LOWEST RATED SPEED I
Setting point w/out aux. spring
Speed
            1/min : 350
Contr.-rod trav.mm: 6.6
Testing:
             1/min : 100
Speed
C-rod trav.mm min: 19.00
Speed 1/min: 350
                  : 6.30...6.90
C-rod trav.mm
                    : 2.00
C-rod trav.mm
             1/min : 415...475
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
  C-rod trav.mm : 9.60...9.70
2nd speed 1/min: 800
C-rod trav.mm : 10.50...10.60
3rd speed 1/min : 950
  C-rod trav.mm : 9.90...10.10
FUEL-DELIVERY CHARACTERISTICS
             1/min : 800
Speed
Del.quantity cm3/: 68.0...70.0
1000H: (66.0...72.0)
Dispersion cm3/: 5.00
             1000H.: (7.00)
STARTING FUEL DELIVERY
LOW IDLE
Speed
             1/min : 350
Contr.-rod trav.mm: 6.30...6.90
Del.quantity cm3/: 10.0...12.0
1000H.: (7.0...15.0)
Dispersion cm3/: 3.50
             1000H.: (5.00)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      Contr.-rod trav.mm: 9.00...12.00
                                                      Cam sequence : 1- 5- 3- 6- 2- 4
Note inst. in remarks column
Test sheet
                    : MB 6.0 D 24
: 03.04.87
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
Edition
Superceeded
Calibrating oil : ISO-4113
                                                      BASIC SETTING
                    : 0 403 476 056
Combination no.
                                                      1st speed
                                                                     1/mi: 1200
Injection pump
Pump designation : PES6NW100/720RS1139
                                                      Contr.-rod trav.mm: 11.40...11.50
EP type number
                    : 0 413 406 134
                                                      Del.quantity cm3/: 7.5...7.7
Governor
                   : RSV350...1200MW1A316
Governor design.
                                                                     100H.: (7.3...7.9)
                     -4
Governer no.
                   : 0 420 085 078
                                                      Dispersion
                                                                    cm3/: 0.35
Customer-spec. information
Customer
                                                                     100H.: (0.6)
                   : DB
                                                                    1/min: 350.0
Engine
                    : 0M366A
                                                      2nd speed
                                                      Contr.-rod trav. m: 6.1...6.7
                                                      Del.quantity cm3/: 1.0...1.2
100H.: (0.7...1.5)
1st version kW : 100.0
              1/min: 2400
Speed
                                                                    cm3/: 0.35
                                                      Dispersion
TEST BENCH REQUIREMENTS
                                                                     100H.: (0.5)
Calibrating-oil inlet temp. °C
                                                      SLEEVE POSITION
                    : 38...42
                                                      Control-lever position
                                                                   Degree: -3
1/min: 800
Overflow valve
                                                      Cont.-rod travelmm: 0.30...1.00
                    : 1 417 413 000
Inlet press., bar : 1.50
                                                      Governor-spring reload
                                                      Notch setting x : 3.50
Calibrating nozzle-holder
             : 0 681 343 009
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
Opening
                                                      1st version
 pressure, bar : 172...175
                                                                    1/min: 1200
                                                      Speed
                                                      Del.quantity cm3/: 75.0...77.0
1000H:: (73.0...79.0)
Dispersion cm3/: 3.50
Test inj. tubing : 1 680 750 008
                                                                   1000H.: (6.00)
Outside diameter
                                                      HIGHEST RATED SPEED
x Wall thickness
x Length mm
                    : 6,00x2,00x600
                                                      1st version
                                                      Control-lever
                                                       position degrees: 51...59
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                      Testing:
                                                      1st c-rod trav.mm : 10.50
Speed 1/min : 1240...1245
2nd c-rod trav.mm : 4.00
    per values
START OF DELIVERY
                                                      Speed 1/min: 1271...1284
3rd c-rod trav.mm: 4,00
Test pressure, bar: 30...32
                 : 3.70...3.80
                                                        Speed
                                                                  1/min : 1290...1320
Prestroke min
                    : (3.65...3.85)
                                                      4th speed
                                                                   1/min : 1450
J27
```

```
C-rod trav.mm : 0.30...1.70
5th speed 1/min: 1240...1255
  C-rod trav.mm
                   : 9.00
LOWEST RATED SPEED I
Setting point w/out aux. spring
            1/min : 350
Speed
Contr.-rod trav.mm: 6.4
Testing:
             1/min : 100
Speed
C-rod trav.mm min: 19.00
Speed 1/min: 350
C-rod trav.mm
                : 6.10...6.70
            nm : 2.00
1/min : 415...475
C-rod trav.mm
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
  C-rod trav.mm : 10.00...10.10
2nd speed 1/min: 800
                  : 10.80...10.90
  C-rod trav.mm
           1/min : 900
3rd speed
  C-rod trav.mm : 10.80...10.90
4th speed 1/min: 1050
  C-rod trav.mm : 10.30...10.50
FUEL-DELIVERY CHARACTERISTICS
Speed 1/min: 800
Del.quantity cm3/: 73.0...75.0
             1000H.: (71.0...78.0) cm3/: 5.00
Dispersion
             1000H.: (7.00)
STARTING FUEL DELIVERY
            1/min : 100
Speed
Del.quantity cm3/: 80.0...90.0
            1000H.: (77.0...93.0)
LOW IDLE
            1/min : 350
Speed
Contr.-rod trav.mm: 6.10...6.70
Del.quantity cm3/: 10.0...12.0
             1000H.: (7.0...15.0)
             cm3/:3.50
Dispersion
             1000H.: (5.00)
Remarks:
```

,111111111111111

```
Contr.-rod trav.mm: 9.00...12.00
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                    Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
                   : MB 6.0 D 33
Test sheet
                                                    SD ang. spacing<sup>3</sup>CS: 0-60-120-180-240-300
Tolerance + - : 0.50 (0.75)
                   : 05.06.87
Edition
Superceeded
Calibrating oil : ISO-4113
                                                    BASIC SETTING
Combination no.
                   : 0 403 476 056
                                                    1st speed
                                                               1/mi: 1200
Injection pump
Pump designation : PES6MW100/720RS1144
                                                    Contr.-rod trav.mm; 10.00...10.10
EP type number
                   : 0 413 406 138
                                                    Del.quantity cm3/ : 7.5...7.7
Governor
Governor design.
                   : RSV350...1200MW1A316
                                                                  100Ha: (7.3...7.9)
                  : 0 420 085 078
Governer no.
                                                    Dispersion
                                                                  cm3/:0.3
Customer-spec. information
                                                                  100H.: (0.6)
Customer
Engine
                  : 0M366A
                                                    2nd speed
                                                                  1/min: 350.0
                                                    Contr.-rod trav. m: 6.1...6.7
                                                    Del.quantity cm3/: 1.0...1.2
100H:: (0.7...1.5)
Dispersion cm3/: 0.3
1st version kW : 100.0
             1/min: 2400
Speed
TEST BENCH REQUIREMENTS
                                                                  100H.: (0.5)
Calibrating-oil inlet temp. OC
                                                    SLEEVE POSITION
                   : 38...42
                                                    Control-lever position
                                                                Degree: -3
                                                                  17min: 800
Overflow valve
                   : 1 417 413 000
                                                    Cont.-rod travelmm: 0.30...1.00
                                                    Governor-spring reload
Inlet press., bar: 1.50
                                                    Notch setting x : 3.50
Calibrating nozzle-holder
            : 0 681 343 009
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
 assembly
Opening
                                                    1st version
                                                    Speed 1/min: 1200
Del.quantity cm3/: 75.0...77.0
1000H.: (73.0...79.0)
pressure, bar : 172...175
                                                    Dispersion cm3/ : 3.50
Test inj. tubing : 1 680 750 008
                                                                 1000H.: (6.00)
Outside diameter
                                                    HIGHEST RATED SPEED
x Wall thickness
                  : 6.00x2.00x600
x Length mm
                                                    1st version
                                                    Control-lever
                                                     position degrees: 51...59
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    Testing:
                                                    1st c-rod trav.mm : 10.50
    per values ____
                                                      Speed 1/min: 1240...1245
                                                    2nd c-rod trav.mm : 4.00
START OF DELIVERY
                                                               1/min: 1271...1284
                                                      Speed
Test pressure, bar: 30...32
                                                    3rd c-rod trav.mm : 4.00
                                                               1/min : 1290...1320
               : 3.70...3.80
                                                      Speed
Prestroke mm
                                                    4th speed 1/min: 1450
                   : (3.65...3.85)
K01
```

```
C-rod trav.mm : 0.30...1.70
5th speed 1/min: 1240...1255
  C-rod trav.mm : 9.00
LOWEST RATED SPEED I
Setting point w/out aux. spring
            1/min : 350
Speed
Contr.-rod trav.mm: 6.4
Testing:
Speed 1/min: 100
C-rod trav.mm min: 19.00
Speed 1/min: 350
C-rod trav.mm
                   : 6.10...6.70
                    : 2.00
C-rod trav.mm
             1/min : 415...475
Speed
TORQUE CONTROL
Torque-control curve - 1st version
1st speed 1/min : 1200
  C-rod trav.mm : 10.00...10.10
2nd speed 1/min: 800
  C-rod trav.mm : 10.90...11.00
3rd speed 1/min: 900
  C-rod trav.mm : 10.90...11.00
4th speed 1/min : 1050
  C-rod trav.mm : 10.30...10.50
FUEL-DELIVERY CHARACTERISTICS
             1/min : 800
Speed
Del.quantity cm3/ : 73.0...75.0
             1000H.: (71.0...78.0)
cm3/: 5.00
1000H.: (7.00)
Dispersion
STARTING FUEL DELIVERY
Speed
             1/min : 100
Del.quantity cm3/: 80.0...90.0
1000H:: (77.0...93.0)
Contr.-rod trav.mm: 19.00...21.00
LOW IDLE
Speed
             1/min : 350
Contr.-rod trav.mm: 6.10...6.70
Del.quantity cm3/: 10.0...12.0
             1000H.: (7.0...15.0)
cm3/: 3.50
1000H.: (5.00)
Dispersion
Remarks:
```

```
: 1- 8- 7- 2- 6- 5-
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                   Cam sequence
                                                                          4- 3
Note inst. in remarks column
Test sheet
                   : KHD 13,4 D
                   : 05.06.87
                                                   SD ang. spacing CS: 0-45-90-135-180-225-
Edition
                                                                        270-315
Superceeded
                                                   Tolerance + - 0
                                                                      : 0.50 (0.75)
Calibrating oil : ISO-4113
Combination no.
                  : 0 403 548 007
                                                   BASIC SETTING
Injection pump
                                                   1st speed
                                                                 1/mi: 1150
Pump designation : PE8MW100/720LS1118
                                                   Contr.-rod trav.mm: 12.10...12.20
EP type number
                : 0 413 508 102
Governor
Governor design. : RQV300...1150MW56
                                                   Del.quantity cm3/: 12.9...13.1
                 : 0 420 083 075
Governer no.
                                                                 100H.: (12.7...13.3)
Customer-spec. information
Customer
                  : KHD
                                                   Dispersion
                                                                cm3/:0.3
                   : BF8L513
                                                                 100H.: (0.6)
Engine
1st version kW : 222.0
                                                   2nd speed
                                                                 1/min: 300.0
                                                   Contr.-rod trav. m: 6.9...7.0
Speed
             1/min: 2300
                                                   Del.quantity cm3/: 1.6...2.0
                                                                 100H.: (1.3...2.2)
TEST BENCH REQUIREMENTS
                                                                 cm3/:0.3
                                                   Dispersion
Calibrating-oil inlet temp. °C
                                                                 100H.: (0.5)
                   : 38...42
                                                   SLEEVE POSITION
Overflow valve
                                                   Control-lever position
                                                               Degree: -1
1/min: 1175
                   : 1 417 413 000
                                                   Speed
                                                   Cont.-rod travelmm: 15.20...17.80
Inlet press., bar : 1.50
                                                   FULL-LOAD DELIV. AT FULL-LOAD STOP
Calibrating nozzle-holder
                 : 0 681 343 009
 assembly
                                                   1st version
Opening
                                                   Speed
                                                                 1/min: 1150
                                                   Charge press. hPa : 800
Del.quantity cm3/ : 129.0...131.0
pressure, bar : 172...175
                                                   1000H.: (127.0...133.0)
Dispersion cm3/: 3.50
Test inj. tubing : 1 680 740 014
                                                                1000H.: (6.00)
Outside diameter
x Wall thickness
                                                   HIGHEST RATED SPEED
                : 6.00x2.00x600
                                                   1st version
x Length mm
                                                   Control-lever
                                                    position degrees: 51...59
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                   Testing:
    per values
                                                   1st c-rod trav.mm : 12.60
                                                              1/min : 1190...1200
                                                     Speed
START OF DELIVERY
                                                   2nd c-rod trav.mm : 4.00
                                                               1/min : 1300...1330
Test pressure, bar: 30...32
                                                     Speed
                                                               1/min : 1400
                                                   4th speed
                                                                      : 0.00...1.00
Prestroke mm
                   : 3.10...3.20
                                                     C-rod trav.mm
                   : (3.05...3.25)
Contr.-rod trav.mm: 9.00...12.00
                                                   LOWEST RATED SPEED I
KO3
```

Control-lever position degrees: 18...26 Setting point w/out aux. spring Speed 1/min : 300 Contr.-rod trav.mm: 6.9 C-rod trav.mm min : 8.50 1/min : 300 Speed : 6.90...7.00 C-rod trav.mm CONSTANT REGULATION 1/min : 330...400 Speed TORQUE CONTROL Torque-control curve - 1st version 1/min : 1150 1st speed : 13.60...13.70 C-rod trav.mm 1/min : 700 2nd speed C-rod trav.mm : 14.20. ..14.30 3rd speed 1/min: 900 C-rod trav.mm : 13.80...14.10 compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : 360 Contr.-rod trav.mm: 13.90...14.00 Measurement 1/min : 500 Speed 1st pressure hPa : 13.2...13.30 C-rod trav.mm 2nd pressure hPa : 260 : 13.40...13.70 C-rod trav.mm 3rd pressure hPa : 800 : 14.20...14.30 C-rod trav.mm SWITCH-OVER POINT Speed 1/min : 230 (250) FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 800 Speed 1/min: 700 Del.quantity cm3/: 133.0...135.0 1000H.: (131.0...137.0) cm3/:5.00Dispersion 1000H.: (7.00) Charge press. hPa : -1/min : 450 Speed Del.quantity cm3/: 104.0...106.0 1000H.: (101.5...108.5)

LOW IDLE

Speed 1/min : 300 Contr.-rod trav.mm: 6.90...7.00 Del.quantity cm3/: 16.0...20.0 1000H.: (13.5...22.5) cm3/: 3.50 1000H.: (5.50)

Dispersion

Remarks:

STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet Edition : KHD 13,4 D4 : 09.03.87

Superceeded

Calibrating oil : ISO-4113

Combination no. : 0 403 548 014

Injection pump

Pump designation : PE8MW100/720LS1128

EP type number : 0 413 508 103

Governor

Governor design. : RQ300...1150MW63-2

Governer no. : 0 420 082 019

Customer-spec. information Customer : KHD

: BF 8L 513 Engine

1st version kW : 235.0 1/min: 2300 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25) Contr.-rod trav.mm: 9.00...12.00

: 1- 8- 7- 2- 6- 5-Cam sequence 1st version 4- 3 Control-lever position degrees: 34...42 Setting point: SD ang. spacing CS: 0-45-90-135-180-225-Speed 1/min: 600 270-315 Contr.-rod trav.mm: 20.0 Tolorance + - 0 : 0.50 (0.75) Testing: BASIC SETTING 1st c-rod trav.mm : 13.00 1/min : 1190...1200 Speed 2nd c-rod trav.mm : 4.00 1st speed 1/mi: 1150 1/min : 1285...1315 1/min : 1370 Speed Contr.-rod trav.mm: 13.90...14.00 4th speed C-rod trav.mm : 0.00...1.00 Del.quantity cm3/: 14.1...14.3 LOWEST RATED SPEED I 100H.: (13.9...14.5) Control-lever position degrees: 8...16 Setting point w/out aux. spring Dispersion cm3/:0.3Speed 1/min: 300 Contr.-rod trav.mm: 7.7 100H.: (0.6) 2nd speed 1/min: 300.0 Contr.-rod trav. m: 7.7...7.8 Del.quantity cm3/: 1.3...1.7 Testing: 1/min : 100 Speed C-rod trav.mm min: 9.30 100H.: (1.1...1.9) 1/min : 300 Speed cm3/: 0.3 100H.: (0.5) Dispersion : 7.70...7.80 C-rod trav.mm CONSTANT REGULATION 1/min : 330...400 (B) Setting of injection pump with Speed externally-mounted governor TORQUE CONTROL SLEEVE TRAVELS Torque-control curve - 1st version 1st speed 1/min: 1150 1st speed 1/min: 1280 Sleeve travel mm: 9.00...9.80 C-rod trav.mm : 13.90...14.00 2nd speed 1/min: 1150
 Steeve travel mm: 6.60...6.80
3rd speed 1/min: 650
 Steeve travel mm: 5.80...6.20
4th speed 1/min: 300 2nd speed 1/min: 700 C-rod trav.mm : 14.90...15.00 3rd speed 1/min : 950 C-rod trav.mm : 14.20...14.50 Sleeve travel mm: 1.20...2.00 compensator (LDA,ADA,ALDA) SLEEVE POSITION Control-lever position 1st version Degree: -2 1/min: 600 Setting 1/min : 500 Speed Speed hPa : 480 Cont.-rod travelmm: 19.20...20.80 Pressure Contr.-rod trav.mm: 14.40...14.50 FULL-LOAD DELIV. AT FULL-LOAD STOP Measurement Speed 1/min : 500 1st version Speed 1/min: 1150 Charge press. hPa: 900
Del.quantity cm3/: 141.0...143.0
1000H.: (139.0...145.0)
Dispersion cm3/: 3.50 1st pressure hPa : 900 : 14.90...15.00 C-rod trav.mm 2nd pressure hPa : -C-rod trav.mm : 12.70...12.80 3rd pressure hPa : 330 1000H.: (6.00) : 13.20...13.50 C-rod trav.mm HIGHEST RATED SPEED K06

```
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa: 900
Speed 1/min: 700
Del.quantity cm3/: 153.0...155.0
1000H.: (151.0...157.0)
Dispersion cm3/: 5.00
                   1000H.: (7.00)
Charge press. hPa : -
Speed
                  1/min : 450
Del.quantity cm3/: 107.0...109.0
1000H.: (105.0...111.0)
STARTING FUEL DELIVERY
Speed
                  1/min : 100
Del.quantity cm3/: 135.0...155.0
1000H.: (132.0...158.0)
LOW IDLE
Speed 1/min: 300
Contr.-rod trav_mm: 7.70...7.80
Del.quantity cm3/: 13.0...17.0
1000H:: (11.0...19.0)
Dispersion cm3/: 3.50
1000H:: (5.50)
Remarks:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.
```

```
: 1-8-7-2-6-5-
4-3
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                   Cam sequence
Note inst. in remarks column
Test sheet
                  : KHD 12,7 T6
                                                   SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-
                  : 09.03.87
Edition
Superceeded
                                                                       270-315
                                                   Tolerance + - 0
                                                                      : 0.50 (0.75)
Calibrating oil : ISO-4113
Combination no.
                  : 0 403 548 018
                                                   BASIC SETTING
Injection pump
                                                   1st speed
                                                                 1/mi: 1150
Pump designation : PE8MW100/720LS1117
EP type number : 0 413 508 101
                                                   Contr.-rod trav.mm: 11.50...11.60
Governor
Governor design. : RQV300...1150MW75
                                                   Del.quantity cm3/: 10.5...10.7
Governer no. : 0 420 083 113
                                                                100H.: (10.3...10.9)
Customer-spec. information
Customer
                  : KHD
                                                   Dispersion
                                                                cm3/:0.3
                  : F 8L 513
Engine
                                                                100H.: (0.6)
1st version kW : 188.0
                                                   2nd speed
                                                                1/min: 300.0
                                                   Contr.-rod trav. m: 8.0...8.1
Speed
             1/min: 2300
                                                  Del.quantity cm3/: 1.1...1.5
TEST BENCH REQUIREMENTS
                                                                100H.: (0.9...1.7)
                                                                cm3/:0.3
                                                   Dispersion
                                                                100H.: (0.5)
Calibrating-oil inlet temp. °C
                   : 38...42
                                                   SLEEVE POSITION
Overflow valve
                                                   Control-lever position
                   : 1 417 413 000
                                                               Degree: -1
                                                                17min: 1170
                                                  Speed
                                                   Cont.-rod travelmm: 15.20...17.80
Inlet press., bar : 1.50
                                                   FULL-LOAD DELIV. AT FULL-LOAD STOP
Calibrating nozzle-holder
                 : 0 681 343 009
 assembly
                                                   1st version
                                                  Speed 1/min: 1150
Del.quantity cm3/: 105.0...107.0
Opening
pressure, bar : 172...175
                                                               1000H.: (103.0...109.0)
cm3/: 3.50
                                                   Dispersion
                                                               1000H.: (6.00)
Test inj. tubing : 1 680 740 014
                                                  HIGHEST RATED SPEED
Outside diameter
x Wall thickness
                                                   1st version
               : 6.00x2.00x600
                                                   Control-lever
x Length mm
                                                    position degrees: 51...59
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                   Testing:
                                                   1st c-rod trav.mm : 10.50
    per values ____
                                                    Speed 1/min: 1190...1200
                                                   2nd c-rod trav.mm : 4.50
                                                             1/min : 1260...1290
START OF DELIVERY
                                                    Speed
                                                               1/min : 1350
Test pressure, bar: 30...32
                                                   4th speed
                                                    C-rod trav.mm : 0.00...1.00
Prestroke mm
                   : 3.10...3.20
                  : (3.05...3.25)
                                                  LOWEST RATED SPEED I
Contr.-rod trav.mm: 9.00...12.00
                                                  Control-lever
K08
```

```
position degrees: 18...26
Setting point w/out aux. spring
             1/min : 300
Speed
Contr.-rod trav.mm: 8.0
Testing:
              1/min : 100
Speed
C-rod trav.mm min : 9.70
             1/min : 300
Speed
C-rod trav.mm
                    : 8.00...8.10
CONSTANT REGULATION
              1/min : 320...420
Speed
TORQUE CONTROL
Torque-control curve - 1st version
             1/min : 1150
1st speed
                  : 11.50...11.60
  C-rod trav.mm
2nd speed
            1/min : 650
  C-rod trav.mm : 12.70...12.80
3rd speed 1/min: 900
  C-rod trav.mm : 12.00...12.30
SWITCH-OVER POINT
Speed
             1/min : 220 (250)
FUEL-DELIVERY CHARACTERISTICS
             1/min : 650
Speed
Del.quantity cm3/: 113.0...115.0
             1000H.: (111.0...117.0)
cm3/: 5.00
1000H.: (7.00)
Dispersion
STARTING FUEL DELIVERY
              1/min : 100
Speed
Del.quantity cm3/: 130.0...140.0
1000H.: (127.0...143.0)
LOW IDLE
Speed
              1/min : 300
Contr.-rod trav.mm: 8.00...8.10
Del.quantity cm3/: 11.0...15.0
1000H.: (9.0...17.0)
Dispersion cm3/: 3.50
1000H.: (5.50)
Remarks:
```

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                                       : 1- 8- 7- 2- 6- 5-
                                                    Cam sequence
                                                                           4- 3
Note inst. in remarks column
Test sheet
                   : KHD 13,4 D5
                                                    SD ang. spacing CS: 0-45-90-135-180-225-
                   : 09.03.87
                                                                         270-315
Superceeded
                                                    Tolerance + - 0
Calibrating oil : ISO-4113
                                                                       : 0.50 (0.75)
Combination no. : 0 403 548 019
                                                    BASIC SETTING
Injection pump
                                                    1st speed
                                                                   1/mi: 900
Pump designation : PE8MW100/720LS1118
EP type number : 0 413 508 102
                                                    Contr.-rod trav.mm: 11.00...11.10
Governor
Governor design. : RQV425...900MW76
                                                    Del.quantity cm3/: 10.3...10.5
Governer no.
                : 0 420 083 114
                                                                  100H.: (10.1...10.7)
Customer-spec. information
                  : KHD
                                                                  cm3/:0.3
Customer
                                                    Dispersion
Engine
                   : BF8L513
                                                                  100H.: (0.6)
1st version kW : 160.0
                                                    2nd speed
                                                                  1/min: 425.0
                                                    Contr.-rod trav. m: 6.0...6.1
Speed
             1/min: 1800
                                                    Del.quantity cm3/: 1.3...1.7
                                                                  100H.: (1.1...1.9)
TEST BENCH REQUIREMENTS
                                                                  cm3/ : 0.3
                                                    Dispersion
Calibrating-oil inlet temp. °C
                                                                  100H.: (0.5)
                   : 38...42
                                                    (B) Setting of injection pump with
Overflow valve
                                                        externally-mounted governor
                   : 1 417 413 000
                                                    SLEEVE TRAVELS
Inlet press., bar : 1.50
                                                    1st speed 1/min: 950
                                                      Sleeve travel mm: 8.70...8.80
Calibrating nozzle-holder
                                                    2nd speed 1/min: 1000
               : 0 681 343 009
                                                      Sleeve travel mm: 9.70...10.10
 assembly
                                                    3rd speed 1/min: 600
Sleeve travel mm: 3.90...4.50
4th speed 1/min: 425
Opening
pressure, bar : 172...175
                                                      Sleeve travel mm: 1.60...2.00
Test inj. tubing : 1 680 740 014
                                                    SLEEVE POSITION
                                                    Control-lever position
Outside diameter
                                                                Degree: -1
                                                                  17min: 925
x Wall thickness
                                                    Speed
                : 6.00x2.00x600
                                                    Cont.-rod travelmm: 15.20...17.80
x Length mm
                                                    FULL-LOAD DELIV. AT FULL-LOAD STOP
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                    1st version
    per values
                                                    Speed
                                                                  1/min: 900
                                                    Del.quantity cm3/: 103.0...105.0
                                                                1000H.: (101.0...107.0) cm3/: 3.50
START OF DELIVERY
Test pressure, bar: 30...32
                                                    Dispersion
                                                                 1000H.: (6.00)
                    3.10...3.20
Prestroke mm
                   : (3.05...3.25)
                                                    HIGHEST RATED SPEED
Contr.-rod trav.mm: 9.00...12.00
                                                    1st version
K10
```

```
Control-lever
 position degrees: 51...59
Testing:
1st c-rod trav.mm : 10.00
  Speed 1/min: 940...950
2nd c-rod trav.mm : 4.50
  Speed 1/min: 985...1015
LOWEST RATED SPEED I
Control-lever
 position degrees: 20...28
Setting point w/out aux. spring
             1/min : 425
Speed
Contr.-rod trav.mm: 6.0
Speed
            1/min : 425
C-rod trav.mm
                    : 6.00...6.10
CONSTANT REGULATION
             1/min: 435...520
Speed
TORQUE CONTROL
Torque-control curve - 1st version
            1/min : 900
1st speed
  C-rod trav.mm : 11.00...11.10
2nd speed 1/min: 600
C-rod trav.mm : 11.60...11.70
3rd speed 1/min : 750
  C-rod trav.mm : 11.20...11.50
SWITCH-OVER POINT
             1/min : 360 (400)
Speed
FUEL-DELIVERY CHARACTERISTICS
             1/min : 600
Speed
Del.quantity cm3/: 109.0...111.0
1000H.: (107.5...113.0)
Dispersion cm3/: 5.00
             1000H.: (7.00)
STARTING FUEL DELIVERY
Speed
             1/min : 100
Del.quantity cm3/: 140.0...150.0
             1000H.: (137.0...153.0)
LOW IDLE
             1/min : 425
Speed
Contr.-rod trav.mm: 6.00...6.10
Del.quantity cm3/: 13.0...17.0
1000H.: (11.0...19.0)
Dispersion cm3/: 3.50
             1000H.: (5.50)
Remarks:
```

```
: 1- 8- 7- 2- 6- 5-
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                     Cam sequence
                                                                             4- 3
Note inst. in remarks column
Test sheet
                   : KHD 13,4 D7
                                                     SD ang. spacing CS: 0-45-90-135-180-225-
                   : 13.05.87
                                                                          270-315
Superceeded
                                                     Tolerance + - 0
                                                                         : 0.50 (0.75)
Calibrating oil : ISO-4113
                   : 0 403 548 020
                                                     BASIC SETTING
Combination no.
Injection pump
                                                                  1/mi: 1150
                                                     1st speed
Pump designation : PE8MW100/720LS1128
                                                     Contr.-rod trav.mm: 12.80...12.90
                   : 0 413 508 103
EP type number
Governor
Governor design.
                   : RQV300...1150MW56-1
                                                     Del.quantity cm3/ : 14.1...14.3
Governer no.
                   : 0 420 083 125
                                                                   100H.: (13.9...14.5)
Customer-spec. information
Customer
                   : KHD
                                                     Dispersion
                                                                   cm3/:0.3
                   : BF 8L 513
                                                                   100H.: (0.6)
Engine
                 : 235.0
                                                                   1/min: 300.0
1st version kW
                                                     2nd speed
              1/min: 2300
                                                     Contr.-rod trav. m: 6.5...6.6
Speed
                                                     Del.quantity cm3/: 1.3...1.7
TEST BENCH REQUIREMENTS
                                                                   100H.: (1.1...1.9)
                                                                   cm3/: 0.3
                                                     Dispersion
Calibrating-oil inlet temp. °C
                                                                   100H.: (0.5)
                   : 38...42
                                                     (B) Setting of injection pump with
Overflow valve
                                                         externally-mounted governor
                    : 1 417 413 000
                                                     SLEEVE TRAVELS
                                                     1st speed 1/min: 1280
Inlet press., bar : 1.50
                                                       Sleeve travel mm: 9.00...9.80
                                                     2nd speed 1/min: 1150
Calibrating nozzle-holder
                  ; 0 681 343 009
                                                       Sleeve travel mm: 6.60...6.80
 assembly
                                                     3rd speed 1/min: 650
Sleeve travel mm: 5.80...6.20
4th speed 1/min: 300
Opening
pressure, bar : 172...175
                                                       Sleeve travel mm: 1.20...2.00
                                                     SLEEVE POSITION
Test inj. tubing : 1 680 740 014
                                                     Control-lever position
                                                                 Degree: -1
1/min: 1175
Outside diameter
x Wall thickness
                                                     Speed
                                                     Cont.-rod travelmm: 15.20...17.80
                 : 6.00x2.00x600
x Length mm
                                                     FULL-LOAD DELIV. AT FULL-LOAD STOP
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                     1st version
    per values
                                                                   1/min: 1150
                                                     Speed
                                                    Charge press. hPa: 900
Del.quantity cm3/: 141.0...143.0
1000H.: (139.0...145.0)
Dispersion cm3/: 3.50
START OF DELIVERY
Test pressure, bar: 30...32
                                                                  1000H.: (6.00)
                   : 3.10...3.20
Prestroke mm
                   : (3.05...3.25)
Contr.-rod trav.mm: 9.00...12.00
                                                    HIGHEST RATED SPEED
K12
```

1st version Control-lever position degrees: 50...58 Testing: 1st c-rod trav.mm : 11.80 1/min: 1190...1200 Speed 2nd c-rod trav.mm : 4.00 1/min : 1300...1330 Speed 1/min : 1370 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrées: 14...22 Setting point w/out aux. spring Speed 1/min : 300 Contr.-rod trav.mm: 6.5 Testing: 1/min : 100 Speed C-rod trav.mm min : 8.10 Speed 1/min: 300 : 6.50...6.60 C-red trav.mm CONSTANT REGULATION 1/min : 320...400 Speed TORQUE CONTROL Torque-control curve - 1st version 1/min : 1150 1st speed C-rod trav.mm : 12.80...12.90 2nd speed 1/min: 700 C-rod trav.mm : 13.80...13.90 3rd speed 1/min : 950 C-rod trav.mm : 13.10...13.40 compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed hPa : 480 Pressure Contr.-rod trav.mm: 13.40...13.50 Measurement 1/min : 500 Speed 1st pressure hPa C-rod trav.mm : 11.70...11.80 2nd pressure hPa : 330 C-rod trav.mm : 12.50...12.80 3rd pressure hPa : 900 C-rod trav.mm : 13.80...13.90 FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : 900

K13

#### STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 135.0...155.0 1000H.: (132.0...158.0)

#### LOW IDLE

Remarks: Test electrically-released starting quantity (EES) with 12 volts

: 1- 8- 7- 2- 6- 5 BOSCH INJ. PUMP TEST SPECIFICATIONS Cam sequence Note inst. in remarks column Test sheet : KHD 13,4 D8 SD ang. spacing CS: 0-45-90-135-180-225-: 13.05.87 Edition 270-315 Superceeded Tolerance + - 0 Calibrating oil : ISO-4113 : 0.50 (0.75) : 0 403 548 021 BASIC SETTING Combination no. Injection pump 1st speed 1/mi: 1150 Pump designation : PE8MW100/720LS1118 Contr.-rod trav.mm: 13.20...13.30 EP type number : 0 413 508 102 Governor Governor design. : RQV300...1150MW56-2 Del.quantity cm3/: 13.9...14.1 Governer no. : 0 420 083 127 100H.: (13.7...14.3) Customer-spec. information cm3/:0.3Customer : KHD Dispersion : BF 8L 513 100H.: (0.6) Engine 1st version kW : 235.0 1/min: 300.0 2nd speed 1/min: 2300 Contr.-rod trav. m: 6.9...7.0 Speed Del.quantity cm3/: 1.3...1.7 TEST BENCH REQUIREMENTS 100H.: (1.1...1.9) cm3/:0.3Dispersion Calibrating-oil inlet temp. °C 100H.: (0.5) : 38...42 (B) Setting of injection pump with Overflow valve externally-mounted governor : 1 417 413 000 SLEEVE TRAVELS 1st speed 1/min: 1200 Inlet press., bar: 1.50 Sleeve travel mm: 8.50...8.70 2nd speed 1/min: 1300 Calibrating nozzle-holder Sleeve travel mm: 9.80...10.20

3rd speed 1/min: 600

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 300 : 0 681 343 009 assembly Opening pressure, bar : 172...175 Sleeve travel mm: 1.30...1.70 Test inj. tubing : 1 680 740 014 SLEEVE POSITION Control-lever position Degree: -1 1/min: 1200 Outside diameter x Wall thickness Speed : 6.00x2.00x600 Cont.-rod travelmm: 15.20...17.80 x Length mm FULL-LOAD DELIV. AT FULL-LOAD STOP (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. 1st version per values \_\_\_\_ Speed 1/min: 1150 Charge press. hPa: 900
Del.quantity cm3/: 139.0...141.0
1000H.: (137.0...143.0)
Dispersion cm3/: 3.50 START OF DELIVERY Test pressure, bar: 30...32 1000H.: (6,00) : 3.10...3.20 Prestroke mm : (3.05...3.25) Contr.-rod trav.mm: 9.00...12.00 HIGHEST RATED SPEED

K14

1st version Control-lever position degrees: 50...58 Testing: 1st c-rod trav.mm : 12.20 Speed 1/min: 1190...1200 2nd c-rod trav.mm: 4.00 1/min: 1305...1335 Speed 1/min : 1370 4th speed C-rod trav.mm : 0.00...1.00 LOVEST RATED SPEED I Control-lever position degrees: 14...22 Setting point w/out aux. spring 1/min : 300 Speed Contr.-rod trav.mm: 6.9 Testing: Speed 1/min : 100 C-rod trav.mm min: 8.50 1/min : 300 Speed : 6.90...7.00 C-rod trav.mm CONSTANT REGULATION 1/min : 320...500 Speed TORQUE CONTROL Torque-control curve - 1st version t speed 1/min: 1150 C-rod trav.mm: 13.20...13.30 1st speed 1/min : 750 2nd speed C-rod trav.mm : 13.80...13.90 3rd speed 1/min: 900 C-rod trav.mm : 13.40...13.60 compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed Pressure hPa : 450 Contr.-rod trav.mm: 13.50...13.80 Measurement 1/min : 500 Speed 1st pressure hPa : 12.20...12.30 C-rod trav.mm 2nd pressure hPa : 300 : 12.70...12.80 C-rod trav.mm 3rd pressure hPa : 900 : 13.80...13.90 C-rod trav.mm SWITCH-OVER POINT 1/min : 220 (250) Speed FUEL-DELIVERY CHARACTERISTICS

## STARTING FUEL DELIVERY

Speed 1/min: 100 Del.quantity cm3/: 140.0...150.0 1000H.: (137.0...153.0)

#### LOW IDLE

Speed 1/min: 300 Contr.-rod trav.mm: 6.90...7.00 Del.quantity cm3/: 13.0...17.0 1000H.: (11.0...19.0) Dispersion cm3/: 3.50 1000H.: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column : MTU 47,5 H1 Test sheet Edition : 9.3.87 Superceeded Calibrating oil : ISO-4113 Combination no. : 0 406 030 002 Injection pump Pump designation : PE12ZWM160/12ORS2012 : 0 416 060 003 EP type number Governor Governor design. : RQUV300...1050ZWA65R Governer no. : 0 422 409 036 Customer-spec. information Customer : 12 V 396-03 Engine TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. C : 40...45 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Calibrating nozzle-holder : 1 688 901 026 assembly Opening pressure, bar : 220...223 Test inj. tubing : 1 680 750 016 Outside diameter x Wall thickness : 8.00x2.00x1500 x Length mm (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_ START OF DELIVERY Prestroke mm : 2.50...2.60 : (2.45...2.65) Contr.-rod trav.mm: 12.0 Cam sequence : 12-9-4-5-8-11-2-3-10 -7-6-1

SD ang. spacing CS: 0-15-60-75-120-135-180-195-240-255-300-315 Tolerance + - 0 : 0.50(0.75) SD mark cyl. no. : 12 BASIC SETTING 1st speed 1/mi: 1000 Contr.-rod trav.mm: 18.00 Del.quantity cm3/: 63.0...64.4 100H.: 62.5...64.9 Dispersion cm3/:2.0100H.: (3.0) 1/min: 1000 2nd speed 2nd speed 1/min: 1000 Contr.-rod trav. m: 9.00 Del.quantity cm3/: 21.2...24.0 100H.: (20.7...24.5) Dispersion cm3/: 2.8 100H.: (4.2) 3rd speed 1/min: 350 Contr.-rod trav.mm: 9.00 Del.quantity cm3/: 13.2...15.6 100H.: (12.7...16.1 Dispersion cm3/: 1.6 100H.: (2.4) SLEEVE POSITION Control-lever position Degree: 79...85 17min: 1050 Speed Cont.-rod travelmm: 18.00 HIGHEST RATED SPEED 1st version Control-lever position degrees: 79...85 Testing: 1st c-rod trav.mm : 18.00 Speed 1/min: 1050
2nd c-rod trav.mm: 17.00
Speed 1/min: 1055...1075
3rd c-rod trav.mm: 4.00 1/min : 1150...1210 Speed 4th speed 1/min : 1250 C-rod trav.mm : 0.00...2.00 SET IDLE CONTROL-LEVER

Control-lever position degrees: 19...24

LOWEST RATED SPEED I Speed 1/min: 200 C-rod trav.mm : 10.80...14.20

C-rod trav.mm : 8.00 Speed 1/min : 300 C-rod trav.mm : 0.01

Speed 1/min : 485...590

Remarks:

Stamp prestroke dimension into pump housing Stamp dimension "0". Control-rod travel "O" corresponds to 1.0 mm clearance of the control-collar capsule from the end-face stop plate.

K17

POSITION Speed

1/min : 300

Contr.-rod trav.mm: 8.00

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BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                      Contr.-rod trav.mm: 9.00...12.00
                                                      Cam sequence : 1- 5- 3- 6- 2- 4
Note inst. in remarks column
Test sheet
Edition
Superceeded
                   : CUM 8,3 B 1
                                                      SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75)
                   : 21.05.87
                   : 10.86
Calibrating oil : ISO-4113
                                                      SD mark cyl. no. : 1
                   : 9 400 083 451
Combination no.
                                                      START OF DELIVERY DIFFERENCE
Injection pump
Pump designation : PES6A100D320/3RS2691
                                                      betw.c-rod trav.mm: 9.00...12.00
Difference CS : 3.00...4.00
EP type number
                    : 9 410 230 028
Governor
                                                      BASIC SETTING
Governor design. : RQV350...1100AB1218R
Governer no.
                 : 9 420 080 214
                                                      1st speed
                                                                     1/mi: 1100
                                                      Contr.-rod trav.mm: 12.80...12.90
Customer-spec. information
                   : CUMMINS
Customer
                                                      Del.quantity cm3/: 11.9...12.1
                   : 6 CT/8.3 1
Engine
                                                                    100H.: (11.7...12.3)
1st version kW : 210.0
Speed
              1/min: 2200
                                                      Dispersion
                                                                    cm3/:0.3
TEST BENCH REQUIREMENTS
                                                                    100H.: (0.6)
                                                      2nd speed 1/min: 350.0
Contr.-rod trav. m: 5.9...6.1
Del.quantity cm3/: 1.3...1.7
100H.: (1.0...1.9)
Calibrating-oil inlet temp. OC
                    : 38...42
Overflow valve
                                                                    cm3/: 0.3
100H.: (0.5)
                    : 1 417 413 047
                                                      Dispersion
Inlet press., bar : 1.00
                                                      (B) Setting of injection pump with
                                                          externally-mounted governor
Calibrating nozzle-holder
             : 0 681 343 009
 assembly
                                                      SLEEVE TRAVELS
                                                      1st speed 1/min: 1150
Sleeve travel mm: 8.50...8.60
Opening
 pressure, bar : 172...175
                                                      2nd speed 1/min: 350
                                                        Sleeve travel mm: 2.20...2.60
                                                                   1/min: 500
Test inj. tubing : 1 680 750 014
                                                      3rd speed
                                                        Sleeve travel mm: 3.60...3.90
                                                      4th speed 1/min: 800
Outside diameter
                                                        Sleeve travel mm: 5.30...5.60
x Wall thickness
x Length mm
                   : 6.00x2.00x600
                                                      SLEEVE POSITION
                                                      Control-lever position
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                                   Degree: -1
                                                      Speed
                                                                    17min: 1140
                                                      Cont.-rod travelmm: 15.20...17.80
    per values
START OF DELIVERY
                                                      FULL-LOAD DELIV. AT FULL-LOAD STOP
Test pressure, bar: 25...27
                                                      1st version
Prestroke mm : 2.80...2.90
                                                                    1/min: 1100
                                                      Speed
                    : (2.75...2.95)
                                                      Charge press. hPa : 800
K18
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Del.quantity cm3/: 119.0...121.0 1000H.: (117.0...123.0) Dispersion cm3/: 3.50 1000H.: (6.00) HIGHEST RATED SPEED 1st version Control-lever position degrees: 59...67 Testing: 1st c-rod trav.mm : 11.80 Speed 1/min: 1140...1150 2nd c-rod trav.mm: 4.00 Speed 1/min: 1240...1270 4th speed 1/min: 1370 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 11...19 Testing: Speed 1/min : 100 C-rod trav.mm min: 9.00 1/min : 350 Speed C-rod trav.mm : 5.90...6.10 C-rod trav.mm : 2.00 1/min : 630...690 Speed CONSTANT REGULATION 1/min : 350...500 Specd TORQUE CONTROL Dimension a mm : 0.70 Torque-control curve - 1st version 1st speed 1/min : 1100 C-rod trav.mm : 12.80...12.90 2nd speed 1/min : 700 C-rod trav.mm : 13.50...13.60 3rd speed 1/min : 900 C-rod trav.mm : 13.30...13.50 4th speed 1/min: 950 C-rod trav.mm : 13.10...13.30 compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 Speed hPa : 800 Contr.-rod trav.mm: 13.50...13.60 Measurement 1/min : 500 Speed 1st pressure hPa : -C-rod trav@mm : 11.40...11.50 2nd pressure hPa : 575

C-rod trav.mm : 12.90...13.10 3rd pressure hPa : 475 : 12.00...12.20 C-rod trav.mm SWITCH-OVER POINT Speed 1/min : 290 (310) FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa: 800 1/min : 900 Speed Del.quantity cm3/: 128.5...131.5 1000H.: (126.0...134.0) Charge press. hPa : -1/min : 500 Speed Del.quantity cm3/: 86.0..88.0 1000H.: (84.0...90.0) STARTING FUEL DELIVERY Speed 1/min : 100 Del.quantity cm3/: 168.0...182.0 1000H.: (-) Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min: 350 Contr.-rod trav.mm: 5.90...6.10 Del.quantity cm3/: 13.0...17.0 1000H.: (10.5...19.5) Dispersion cm3/: 3.50 1000H.: (5.50)

Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

K19

BOSCH INJ. PUMP TEST SPECIFICATIONS SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300 Tolerance + - \* : 0.50 (0.75) Note inst. in remarks column Test sheet : CUM 8,3 A 5 : 21.05.87 Edition SD mark cyl. no. : 1 Superceeded Calibrating oil : ISO-4113 START OF DELIVERY DIFFERENCE betw.c-rod trav.mm: 9.00...12.00 Difference CS : 3.00...4.00 Combination no. : 9 400 083 454 Injection pump Pump designation : PES6A100D320/3RS2691 BASIC SETTING EP type number : 9 410 230 025 Governor 1st speed 1/mi: 900 Governor design. : RSV400...900A7C2209-Contr.-rod trav.mm: 12.70...12.80 1R : 9 420 083 232 Governer no. Del.quantity cm3/: 12.9...13.0 Customer-spec. information 100H.: (12.7...13.2) Customer : CUMMINS Engine : 6 CT cm3/:0.3Dispersion TEST BENCH REQUIREMENTS 100H.: (0.6) Calibrating-oil inlet temp. °C 1/min: 400.0 2nd speed Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/: 1.6...2.0

100H.: (1.4...2.3)

Dispersion cm3/: 0.3

100H.: (0.5) : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar : 1.00 SLEEVE POSITION Control-lever position Calibrating nozzle-holder : 0 681 343 009 assembly Degree: -3 17min: 800 Cont.-rod travelmm: 0.30...0.70 Opening pressure, bar : 172...175 Governor-spring reload Notch setting x : 5.00 Test inj. tubing : 1 680 750 014 FULL-LOAD DELIV. AT FULL-LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 6.00x2.00x600 Speed 1/min: 900 Del.quantity cm3/: 129.0...130.0 1000H:: (127.0...132.0) Dispersion cm3/: 3.50 1000H:: (6.00) (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_ HIGHEST RATED SPEED START OF DELIVERY 1st version Test pressure, bar: 25...27 Control-lever position degrees: 53...61 : 2.80...2.90 : (2.75...2.95) Prestroke mm Testing: Contr.-rod trav.mm: 9.00...12.00 1st c-rod trav.mm : 11.70 Cam sequence : 1-5- 3- 6- 2- 4 Speed 1/min: 940...950 2nd c-rod trav.mm : 4.00

K20

The second second second

```
1/min: 970...1000
  Speed
            1/min: 1100
4th speed
                 : 0.30...1.40
  C-rod trav.mm
LOWEST RATED SPEED I
Control-lever
 position degrees: 23...31
Setting point w/out aux. spring
Speed `
           1/min : 400
Contr.-rod trav.mm: 5.5
Testing:
Speed
            1/min : 100
C-rod trav.mm min : 19.00
            1/min : 400
Speed
                 : 5.90...6.10
C-rod trav.mm
                 : 2.00
C-rod trav.mm
            1/min: 420...480
Speed
TORQUE CONTROL
Torque-control curve - 1st version
          1/min : 900
1st speed
  C-rod trav.mm : 12.70...12.80
2nd speed
           1/min : 500
  C-rod trav.mm : 12.70...12.90
5th speed 1/min: 400
  C-rod trav.mm : 13.70...14.30
FUEL-DELIVERY CHARACTERISTICS
           1/min : 500
Speed
Del.quantity cm3/: 115.0...118.0
            1000H.: (112.5...120.5)
STARTING FUEL DELIVERY
Speed
           1/min : 100
Del.quantity cm3/: 135.0...149.0
            1000H.: (132.0...152.0)
Contr.-rod trav.mm: 19.00...21.00
LOW IDLE
1000H.: (14.0...23.0)
cm3/: 3.50
Dispersion
            1000H.: (5.50)
Remarks:
APPLICATION
Generator
```

BOSCH INJ. PUMP TEST SPECIFICATIONS SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.5(0.75) Note inst. in remarks column : FOR 6,6 A 1 Test sheet SD mark cyl. no. : 1 Edition : 6.87 START OF DELIVERY DIFFERENCE : 5.85 Superceeded Calibrating oil : ISO-4113 betw.c-rod trav.mm: 9.00...12.00 & c-rod trav max. : 21.00 Difference CS : 2.0...3.0 : 9 400 085 232 Combination no. Injection pump Pump designation : PES6A95D41ORS2688 BASIC SETTING : 9 400 083 090 EP type number Governor 1st speed 1/mi: 1300 Governor design. : RQV350...1300AB1208L Governer no. : 9 420 080 185 Contr.-rod trav.mm: 12.10...12.20 Del.quantity cm3/ : 8.6...8.8 Customer-spec. information Customer : FORD 100H.: (8.4...9.0) Engine : 6,6 L TC cm3/: 0.35Dispersion \_\_\_\_ TEST BENCH REQUIREMENTS 100H.: (0.6) Calibrating-oil inlet temp. °C : 38...42 1/min: 350 2nd speed Contr.-rod trav. m: 6.90...7.10 Del.quantity cm3/: 0.95...1.35 Overflow valve : 1 417 413 000 100H.: (0.7...1.6) cm3/: 0.35 100H.: (0.55) Dispersion Inlet press., bar : 1.0 (B) Setting of injection pump with Calibrating nozzle-holder : 0 681 343 009 assembly externally-mounted governor Opening SLEEVE TRAVELS pressure, bar : 172...175 1st speed 1/min: 300 Sleeve travel mm: 1.30...1.50 2nd speed 1/min: 500 Sleeve travel mm: 3.50...3.70 Test inj. tubing : 1 680 750 008 3rd speed 1/min: 1000 Sleeve travel mm: 5.90...6.10 Outside diameter 4th speed 1/min: 1345 x Wall thickness x Length mm : 6,00x2,00x600 Sleeve travel mm: 8.50...6.10 SLEEVE POSITION (A) Injection pump setting values Insp. values in parentheses Control-lever position Set constant delivery quant. Degree: -1 1/min: 1345 per values Cont.-rod travelmm: 15.20...17.80 START OF DELIVERY FULL-LOAD DELIV. AT FULL-LOAD STOP Test pressure, bar: 25...27 Prestroke mm : 3.15...3.25 1st version Speed 1/min: 1300 Charge press. hPa: 500 Del.quantity cm3/: 86.0...90.0 1000H.: (84.0...90.0) : (3.10...3.30) Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5--3-6-2-4

Dispersion cm3/ : 3.5 1000H.: (6.0) HIGHEST RATED SPEED 1st version Control-lever position degrees: 58...66 Testing: 1st c-rod trav.mm : 11.10 1/min : 1340...1350 Speed 2nd c-rod trav.mm : 4.00 1/min : 1460...1490 Speed 1/min : 1600 4th speed C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 14...22 Testing: 1/min : 100 Speed C-rod trav.mm min : 10.00 Speed 1/min : 350 : 6.90...7.10 C-rod trav.mm : 2.00 C-rod trav.mm 1/min : 670...730 Speed TORQUE CONTROL Dimension a mm : 0.70 Torque-control curve - 1st version 1st speed 1/min: 1300 C-rod trav.mm : 12.10...12.20 2nd speed 1/min: 600 C-rod trav.mm : 12.80...12.90 3rd speed 1/min: 800 C-rod trav.mm : 12.60...12.80 4th speed 1/min : 900 C-rod trav.mm : 12.40...12.70 compensator (LDA,ADA,ALDA) 1st version Setting Speed 1/min: 500
Pressure hPa: 500
Contr.-rod trav.mm: 12.80...12.90 Measurement 1/min : 500 Speed 1st pressure hPa : -: 10.60...10.70 C-rod trav.mm : 400 2nd pressure hPa : 12.20....12.30 : 250 C-rod trav.mm 3rd pressure hPa C-rod trav.mm : 11.00...11.20 SWITCH-OVER POINT

K23

1/min : 290 (310) Speed

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500 1/min : 600

Speed

Del.quantity cm3/: 83.0...86.0 1000H.: (80.5...88.5)

Charge press. hPa : 500 1/min : 800 Speed

Del.quantity cm3/: 86.0...89.0 1000H.: (83.5...91.5)

Charge press. hPa : -

1/min : 600 Speed Del.quantity cm3/ : 57.0...59.0

1000H.: (55.0...61.0)

STARTING FUEL DELIVERY

1/min : 100 Speed

Del.quantity cm3/: 115.0...125.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 G : 6.87 Edition Superceeded : 4.86 Calibrating oil : ISO-4113

Combination no. : 9 400 085 248

Injection pump

Pump designation : PES6A95D412RS2709 EP type number : 9 400 083 009

Governor

Governor design. : RQV350...1400AB1202-

Governer no. : 9 420 080 220

Customer-spec. information Customer : FORD (FTO)

Engine : 6,6 L NA

1st version kW : 106.7 1/min: 2800 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Calibrating nozzle-holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_

START OF DELIVERY

Test pressure, bar: 25...27

: 3.15...3.25 Prestroke mm

: (3.10...3.30)

Contr.-rod trav.mm: 9.00...12.00 Del.quantity cm3/: 79.0...80.0 Cam sequence : 1-5-3-6-2-4 1000H.: (77.0...82.0) cm3/ : 3.5 Dispersion 1000H.: (5.5) SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - 0.5(0.75) HIGHEST RATED SPEED 1st version Control-lever position degrees: 60...66 SD mark cyl. no. : 1 START OF DELIVERY DIFFERENCE Testing: 1st c-rod trav.mm: 9.70 betw.c-rod trav.mm: 9.00...12.00 & c-rod trav max. : 21.00 Difference CS : 2.0...3.0 Speed 1/min: 1450...1460 2nd c-red trav.mm: 4.00 Speed 1/min: 1550...1580 4th speed 1/min: 1720 th speed 1/min: 1720 C-rod trav.mm: 0.00...1.00 BASIC SETTING 1st speed 1/mi: 1400 LOWEST RATED SPEED I Control-lever Contr.-rod trav.mm: 10.70...10.80 position degrees: 10...18 Del.quantity cm3/ : 7.9...8.0 Testing: Speed 1/min: 100 C-rod trav.mm min: 9.00 Speed 1/min: 350 100H.: (7.7...8.2) cm3/ : 0.35 C-rod trav.mm : 6.40...6.60 C-rod trav.mm : 2.00 Dispersion Speed 1/min: 560...620 100H.: (0.6) 2nd speed 1/min: 350 Contr.-rod trav. m: 6.40...6.60 Del.quantity cm3/: 0.7...1.1 100H.: (0.5...1.3) Dispersion cm3/: 0.35 100H.: (0.55) SWITCH-OVER POINT 1/min : 290(310) Speed FUEL-DELIVERY CHARACTERISTICS Speed 1/min: 800 Del.quantity cm3/: 70.0...73.0 1000H.: (67.5...75.5) (B) Setting of injection pump with externally-mounted governor STARTING FUEL DELIVERY SLEEVE TRAVELS 1st speed 1/min: 350 Sleeve travel mm: 1.30...1.60 2nd speed 1/min: 700 1/min : 100 Speed Del.quantity cm3/: 112.0...122.0 1000H.: (-) Sleeve travel mm: 4.20...4.60 Contr.-rod trav.mm: 19.00...21.00 3rd speed 1/min: 1100 Sleeve travel mm: 6.10...6.40 4th speed 1/min: 1420 Sleeve travel mm: 8.50...8.60 LOW IDLE SLEEVE POSITION Control-lever position Degree: -1 17min: 1420 Speed Cont.-rod travelmm: 15.20...17.80 1000H.: (5.5) FULL-LOAD DELIV. AT FULL-LOAD STOP Remarks: 1st version 1/min: 1400 Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5-3-6-2-4 Note inst. in remarks column : FOR 6,6 F Test sheet SD ang. spacing  $^{0}$ CS: 0-60-120-180-240-300 Tolerance + -  $^{0}$ : 0.5(0.75) : 6.87 Edition : 3.86 Superceeded : ISO-4113 Calibrating oil SD mark cyl. no. : 1 : 9 400 085 258 Combination no. START OF DELIVERY DIFFERENCE Injection pump Pump designation : PES6A95D410RS2714 betw.c-rod trav.mm: 9.00...12.00 & c-rod tray max. : 21.00 Difference CS : 2.0...3.0 EP type number : 9 400 084 001 Governor : RQV375...1300AB1208-Governor design. BASIC SETTING 1L Governer no. : 9 420 080 219 1/mi: 1300 1st speed Customer-spec. information Customer : FORD (FTO) Contr.-rod trav.mm: 12.10...12.20 Del.quantity cm3/: 8.6...8.8 : 6,6 TC Engine 1st version kW : 121.4 100H.: (8.4...9.0) 1/min: 2600 Speed Dispersion cm3/:0.35TEST BENCH REQUIREMENTS 100H.: (0.6) Calibrating-oil inlet temp. C 2nd speed 1/min: 375 Contr.-rod trav. m: 6.70...6.90 Del.quantity cm3/: 0.9...1.3 : 38...42 Overflow valve : 1 417 413 000 100H.: (0.7...1.6) cm3/: 0.35 100H.: (0.55) Dispersion Inlet press., bar : 1.0 (B) Setting of injection pump with Calibrating nozzle-holder : 0 681 343 009 externally-mounted governor assembly SLEEVE TRAVELS Opening pressure, bar : 172...175 1st speed 1/min: 350 Sleeve travel mm: 1.30...1.60 2nd speed 1/min: 700 Sleeve travel mm: 4.10...4.50
3rd speed 1/min: 1100
Sleeve travel mm: 6.30...6.60 Test inj. tubing : 1 680 750 008 Outside diameter 4th speed 1/min: 1345 x Wall thickness : 6,00x2,00x600 Sleeve travel mm: 8.50...8.60 x Length mm SLEEVE POSITION (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. Control-lever position Degree: -1 17min: 1345 per values Speed Cont.-rod travelmm: 15.20...17.80 START OF DELIVERY FULL-LOAD DELIV. AT FULL-LOAD STOP Test pressure, bar: 25...27 : 3.15...3.25 Prestroke mm 1st version : (3.10...3.30) Speed 1/min: 1300 ¥27

1000H.: (6.0) HIGHEST RATED SPEED 1st version Control-lever position degrees: 59...67 Testing: 1st c-rod trav.mm : 11.10 1/min : 1340...1350 Speed 2nd c~rod trav.mm : 4.00 1/min : 1450...1480 Speed 1/min : 1600 4th speed S-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 12...20 Testing: 1/min : 100 Speed C-rod trav.mm min: 10.00 Speed 1/min : 375 C-rod trav.mm : 6.70...6.90 C-rod trav.mm : 2.00 1/min: 650...710 Speed TORQUE CONTROL : 0.70 Dimension a mm Torque-control curve - 1st version 1st speed 1/min : 1300 C-rod trav.mm : 12.10...12.20 2nd speed 1/min: 600 C-rod trav.mm : 12.80...12.90 3rd speed 1/min: 800 C-rod trav.mm : 12.60...12.80 4th speed 1/min: 900 C-rod trav.mm : 12.40...12.70 compensator (LDA, ADA, ALDA) 1st version Setting 1/min : 500 Speed hPa : 600 Pressure Contr.-rod trav.mm: 12.80...12.90 Measurement 1/min : 500 Speed 1st pressure hPa : -C-rod trav.mm : 10.60...10.70 2nd pressure hPa : 400 : 12.20...12.30 C-rod trav.mm 3rd pressure hPa : 250

C-rod trav.mm : 11.00...11.20

SWITCH-OVER POINT
Speed 1/min : 290(310)

FUEL-DELIVERY CHARACTERISTICS

1st version
Charge press. hPa : 600
Speed 1/min : 600
Del.quantity cm3/ : 83.0...86.0
1000H.: (80.5...88.5)

Charge press. hPa : 600 Speed 1/min : 800 Del.quantity cm3/ : 86.0...89.0 1000H.: (83.5...91.5) Charge press. hPa : -Speed 1/min : 600

Del.quantity cm3/ : 57.0...59.0

1000H.: (55.0...61.0)

STARTING FUEL DELIVERY

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : FOR 6,6 A 2 Edition : 7.87 Superceeded : 2.86 Calibrating oil : ISO-4113 Combination no. : 9 400 085 262 Injection pump Pump designation : PES6A95D41ORS2688 EP type number : 9 400 083 090 Governor Governor design. : RQV375...1300AB1208-1L Governer no. : 9 420 080 219 Customer-spec. information Customer : FORD (FTO) : 6,6 L TC Engine 1st version kW : 121.4 1/min: 2600 Speed TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar : 1.0 Calibrating nozzle-holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test inj. tubing : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6,00x2,00x600 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. per values START OF DELIVERY Test pressure, bar: 25...27 : 3.15...3.25 Prestroke mm

: (3.10...3.30)

Contr.-rod trav.mm: 9.00...12.00 Cam sequence : 1-5-3-6-2-4 SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300 Tolerance + - : 0.5(0.75) HIGHEST RATED SPEED 1st version SD mark cyl. no. : 1 Control-lever position degrees: 59...67 START OF DELIVERY DIFFERENCE Testing: 1st c-rod trav.mm: 11.10 Speed 1/min: 1340...1350 2nd c-rod trav.mm: 4.00 Speed 1/min: 1450...1480 4th speed 1/min: 1600 betw.c-rod trav.mm: 9.00...12.00 & c-rod trav max. : 21.00 Difference CS : 2.0...3.0 BASIC SETTING C-rod trav.mm : 0.00...1.00 1st speed 1/mi: 1300 LOWEST RATED SPEED I Contr.-rod trav.mm: 12.10...12.20 Control-lever position degrees: 12...20 Del.quantity cm3/: 8.6...8.8 Testing: 100H.: (8.4...9.0) 1/min : 100 Speed C-rod trav.mm min : 10.00 1/min : 375 Dispersion cm3/: 0.35Speed C-rod trav.mm : 6.70...6.90 C-rod trav.mm : 2.00 100H.: (0.60) 1/min : 650...710 Speed 2nd speed 1/min: 375 Contr.-rod trav. m: 6.70...6.90 TORQUE CONTROL Del.quantity cm3/ : 0.9...1.3 Dimension a mm : 0.70 Torque-control curve - 1st version 100H.: (0.7...1.6) cm3/:0.351st speed 1/min : 1300 Dispersion 100H.: (0.55) C-rod trav.mm : 12.10...12.20 2nd speed 1/min: 600 C-rod trav.mm : 12.80...12.90 3rd speed 1/min : 800 (B) Setting of injection pump with externally-mounted governor C-rod trav.mm : 12.60...12.80 SLEEVE TRAVELS 4th speed 1/min: 900 C-rod trav.mm : 12.40...12.70 1st speed 1/min: 350 Sleeve travel mm: 1.30...1.60
2nd speed 1/min: 700
Sleeve travel mm: 4.10...4.50
3rd speed 1/min: 1100
Sleeve travel mm: 6.30...6.60
4th speed 1/min: 1345 compensator (LDA, ADA, ALDA) 1st version Setting Sleeve travel mm: 8.50...8.60 1/min : 500 Speed Pressure hPa : 600 SLEEVE POSITION Contr.-rod trav.mm: 12.80...12.90 Control-lever position Degree: -1 1/min: 1345 Measur ement 1/min : 500 Speed Speed Cont.-rod travelmm: 15.20...17.80 1st pressure hPa : C-rod trav.mm : 10.60...10.70 2nd pressure hPa : 400 FULL-LOAD DELIV. AT FULL-LOAD STOP C-rod trav.mm : 12.20...12.30 3rd pressure hPa : 250 1st version 1/min: 1300 Speed L02

```
: 11.00...11.20
  C-rod trav.mm
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 600
Speed 1/min : 600
Del.quantity cm3/: 83.0...86.0
               1000H.: (80.5...88.5)
Charge press. hPa: 600
Speed 1/min: 800
Speed 1/min: 800
Del.quantity cm3/: 86.0...89.0
1000H:: (83.5...91.5)
Charge press. hPa : -
               1/min : 600
Speed
Del.quantity cm3/: 57.0...59.0
1000H.: (55.0...61.0)
STARTING FUEL DELIVERY
Speed
               1/min : 100
Del.quantity cm3/: 115.0...125.0
1000H.: (-)
Contr.-rod trav.mm: 20.0...21.0
LOW IDLE
               1/min : 375
Speed
Contr.-rod trav.mm: 6.70...6.90
Del.quantity cm3/: 9.5...13.5
               1000H.: (7.0...16.0)
cm3/: 3.5
1000H.: (5.5)
Dispersion
```

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : VOL 10,0 Q9 : 21.05.87 Edition Superceeded Calibrating oil : ISO-4113 Combination no. : 9 400 087 368 Injection pump Pump designation : PE6P110A320RS3108V EP type number : 0 411 816 737 Governor Governor design. Governer no. : RQV250...1100PA589-1 : 9 420 080 166 Customer-spec. information : VOLVO Customer Engine : THD 101 FD : 210.0 1st version kW TEST BENCH REQUIREMENTS Calibrating-oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Calibrating nozzle-holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test in i. tubing : 1 681 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values , , , , Insp. values in parentheses Set constant delivery quant. per values \_\_\_\_ START OF DELIVERY Test pressure, bar: 25...27 : 3.00...3.10 Prestroke mm : (2.95...3.15) Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6-

2-

1st version Control-lever SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) position degrees: 61...69 Testing: 1st c-rod trav.mm : 12.70 SD mark cyl. no. : 1 Speed 1/min: 1140...1150 2nd c-rod trav.mm: 4.00 BASIC SETTING Speed 1/min: 1220...1250 3rd c-rod trav.mm: 4.00 1st speed 1/mi: 700 4th speed 1/min : 1350 Contr.-rod trav.mm: 13.70...13.80 C-rod trav.mm : 0.00...1.00 Del.quantity cm3/ : 18.0...18.2 LOWEST RATED SPEED I Control-lever 100H.: (17.7...18.5) position degrees: 7...15 Dispersion cm3/:0.4Testing: 1/min : 100 Speed 100H.: (0.7) C-rod trav.mm min : 6.70 1/min : 250 Speed C-rod trav.mm : 5.40...5.60 2nd speed 1/min: 250 Contr.-rod trav. m: 5.4...5.6
Del.quantity cm3/: 3.2...3.6
100H.: (2.9...3.8)
Dispersion cm3/: 0.3
100H.: (0.6) C-rod trav.mm : 2.00 1/min: 345...405 Speed compensator (LDA, ADA, ALDA) (B) Setting of injection pump with 1st version externally-mounted governor Setting 1/min : 500 Speed hPa : 1200 Pressure SLEEVE TRAVELS Contr.-rod trav.mm: 13.70...13.80 1st speed 1/min: 250 Sleeve travel mm: 1.20...1.30
2nd speed 1/min: 370
Sleeve travel mm: 2.60...3.00
3rd speed 1/min: 430 Measurement 1/min : 500 Speed Sleeve travel mm: 3.50...3.90 1st pressure hPa : -4th speed 1/min: 1160 C-rod trav.mm : 9.80...9.90 Sleeve to avel mm: 8.10...8.30 2nd pressure hPa : 720 5th speed 1/min: 1210 Sleeve travel mm: 9.40...9.60 C-rod trav.mm : 12.80...12.90 3rd pressure hPa : 360 C-rod trav.mm : 10.90...11.00 SLEEVE POSITION FUEL-DELIVERY CHARACTERISTICS Control-lever position Degree: -1 Charge press. hPa : -17min: 1175 1/min : 700 Speed Speed Cont.-rod travelmm: 15.20...17.80 Del.quantity cm3/: 108.0...110.0 1000H.: (105.0...113.0) FULL-LOAD DELIV. AT FULL-LOAD STOP STARTING FUEL DELIVERY 1st version 1/min: 700 Speed Charge press. hPa : 1200 Del.quantity cm3/: 180.0...182.0 1000H.: (177.0...185.0) Dispersion cm3/: 4.00 1/min : 100 Del.quantity cm3/: 160.0...190.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00 1000H.: (7.50)

HIGHEST RATED SPEED

# LOW IDLE

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90

```
Cam sequence : 1-5-3-6-2-4
BOSCH INJ. PUMP TEST SPECIFICATIONS
Note inst. in remarks column
                                                       SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - 0.50 (0.75)
                   : VOL 10,0910
Test sheet
                    : 21.05.87
Edition
Superceeded
Calibrating oil : ISO-4113
                                                        SD mark cyl. no. : 1
Combination no. : 9 400 087 369
                                                       BASIC SETTING
                                                                     1/mi: 700
Injection pump
                                                        1st speed
Pump designation : PE6P110A320RS3108Z
                                                        Contr.-rod trav.mm: 10.50...10.60
EP type number
                  : 0 411 816 728
Governor
Governor design. : RQV250...1100PA589-1
                                                       Del.quantity cm3/: 12.0...12.3
Governer no. : 9 420 080 166
                                                                      100H.: (11.8...12.6)
Customer-spec. information
Customer
                   : VOLVO
                                                       Dispersion
                                                                      cm3/:0.4
                    : THD 101 GB
                                                                      100H.: (0.7)
Engine
1st version kW : 161.0
                                                                      1/min: 250.0
                                                       2nd speed
                                                       Contr.-rod trav. m: 5.4...5.6
Del.quantity cm3/: 3.2...3.6
100H:: (-)
Dispersion cm3/: 0.3
100H:: (0.6)
              1/min: 2200
Speed
TEST BENCH REQUIREMENTS
Calibrating-oil inlet temp. C
                    : 38...42
                                                        (B) Setting of injection pump with
Overflow valve
                                                            externally-mounted governor
                    : 1 417 413 025
                                                       SLEEVE TRAVELS
                                                       1st speed 1/min: 250
Sleeve travel mm: 1.20...1.30
2nd speed 1/min: 370
Sleeve travel mm: 2.60...3.00
Inlet press, bar : 1.50
Calibrating nozzle-holder
                   : 0 681 343 009
 assembly
                                                                     1/min: 430
                  . . . . . . . . . . . . .
                                                        3rd speed
                                                          Sleeve travel mm: 3.50...3.90
Opening
pressure, bar : 172...175
                                                       4th speed 1/min: 1160
                                                          Sieeve travel mm: 8.10...8.30
                                                       5th speed 1/min: 1210
Sleeve travel mm: 9.40...9.60
Test inj. tubing : 1 680 750 015
                                                       SLEEVE POSITION
Outside diameter
                                                       Control-lever position
x Wall thickness
                :: 6.00x1.50x600
                                                                     Degree: -1
x Length mm
                                                                      17min: 1175
                                                       Speed
                                                       Cont.-rod travelmm: 15.20...17.80
(A) Injection pump setting values
    Insp. values in parentheses
Set constant delivery quant.
                                                       FULL-LOAD DELIV. AT FULL-LOAD STOP
    per values
                                                       1st version
                                                                      1/min: 700
START OF DELIVERY
                                                       Speed
                                                       Charge press. hPa : 750
Test pressure = bar: 25...27
                                                       Del.quantity cm3/: 120.0...123.0
                                                                     1000H.: (118.0...126.0)
cm3/ : 4.00
1000H.: (7.50)
Prestroke mm
                    : 3.00...3.10
: (2.95...3.15)
Contr.-rod trav.mm: 9.00...12.00
                                                       Dispersion
L07
```

HIGHEST RATED SPEED 1st version Control-lever position degrees: 52...60 Testing: 1st c-rod trav.mm : 9.50 1/min : 1140...1150 Speed 2nd c-rod trav.mm : 4.00 1/min : 1205...1235 Speed 3rd c-rod trav.mm : 4.00 4th speed 1/min : 1350 C-rod trav.mm : 0.00...1.00 LOWEST RATED SPEED I Control-lever position degrees: 8...12 Testing: 1/min : 100 Speed C-rod trav.mm min : 6.90 1/min : 250 .mm : 5.40...5.60 .mm : 2.00 Speed C-rod trav.mm C-rod trav.mm 1/min : 350...410 Speed compensator (LDA,ADA,ALDA) 1st version Setting 1/min : 500 hPa : 750 Speed Pressure Contr.-rod trav.mm: 10.50...10.60 Measurement Speed 1/min : 500 1st pressure hPa : -C-rod trav.mm : 9.60...9.80 2nd pressure hPa : 250 : 10.30...10.40 C-rod trav.mm 3rd pressure hPa : 220 C-rod trav.mm : 10.00...10.20 FUEL-DELIVERY CHARACTERISTICS 1st version Charge press. hPa : -1/min : 700 Speed Del.quantity cm3/ : 104.5...107.5 1000H.: (102.0...110.0) STARTING FUEL DELIVERY

Speed

L08

1/min : 100

Del.quantity cm3/: 160.0...190.0 1000H.: (-) Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

1/min : 250 Speed Contr.-rod trav.mm: 5.40...5.60 Del.quantity cm3/: 32.0...36.0 1000H.: (-) Dispersion cm3/: 3.00

1000H.: (6.00)

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90

```
BOSCH INJ. PUMP TEST SPECIFICATIONS
                                                        Cam sequence : 1-5-3-6-2-4
Note inst. in remarks column
                                                        SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - 0.5(0.75)
Test sheet
                    : SCA 11,0 V7
Edition
                     : 6.87
Superceeded
Calibrating oi! : ISO-4113
                                                        SD mark cyl. no. : 1
Combination no. : 9 400 087 370
                                                        BASIC SETTING
Injection pump
                                                                        1/mi: 900
                                                         1st speed
Pump designation : PE6P12OA72ORS7004
EP type number
                  : 0 412 626 801
                                                         Contr.-rod trav.mm: 12.80...12.90
Governor
Governor design. : RSV350...900P7/481
                                                        Del.quantity cm3/: 20.8...21.0
Governer no.
                    : 9 420 082 320
                                                                        100H.: (20.5...21.3)
Customer-spec, information
                    : SAAB-SCANIA
                                                                       cm3/:0.6
Customer
                                                        Dispersion
Engine
                    : DS 11
                                                                        100H.: (0.9)
TEST BENCH REQUIREMENTS
                                                        2nd speed
                                                                        1/min: 350
                                                        Contr.-rod trav. m: 5.40...5.60

Del.quantity cm3/: 1.2...1.8

100H.: (0.9...2.1)

Dispersion cm3/: 0.8

100H.: (1.2)
Calibrating-oil inlet temp. °C
                    : 38...42
Overflow valve
                     : 1 417 413 025
                                                        SLEEVE POSITION
                                                        Control-lever position
Inlet press., bar: 1.50
                                                                      Degree: -3
                                                                       17min: 800
Calibrating nozzle-holder
                                                        Speed
                                                        Cont.-rod travelmm: 0.30...1.40
 assembly
               : 1 688 901 019
                                                        Governor-spring reload Notch setting x : 6.00
Opening
                   : 207...210
 pressure, bar
                                                        FULL-LOAD DELIV. AT FULL-LOAD STOP
Perforated-plate
                     : 0,8
 diameter mm
                                                        1st version
                                                                       1/min: 900
                                                        Speed
                                                        Del.quantity cm3/: 208.0...210.0
1000H.: (205.0...213.0)
Dispersion cm3/: 6.0
1000H.: (9.0)
Test inj. tubing : 1 680 750 015
Outside diameter
x Wall thickness
x Length mm
                  : 6,00x1,50x600
                                                        HIGHEST RATED SPEED
(A) Injection pump setting values
                                                        1st version
    Insp. values in parentheses
Set constant delivery quant.
                                                        Control-lever
                                                         position degrees: 46...54
    per values ____
                                                        Testing:
                                                        1st c-rod trav.mm : 11.80
Speed 1/min : 920...925
2nd c-rod trav.mm : 4.00
START OF DELIVERY
Test pressure, bar: 25...27
                     : 5.00...5.10
                                                                     1/min : 960...970
                                                          Speed
Prestroke mm
                     : (4.95...5.15)
                                                                      1/min : 1050
                                                        4th speed
Contr.-rod trav.mm: 9.00...12.00
                                                          C-rod trav.mm : 0.30...1.70
L09
```

LOWEST RATED SPEED I

Control-lever

position degrees: 16...24 Setting point w/out aux. spring 1/min : 350 Speed

Contr.-rod trav.mm: 4.00 Speed 1/min: 350

C-rod trav.mm : 4.40...4.60 C-rod trav.mm : 2.00 Speed 1/min : 400...460

### STARTING FUEL DELIVERY

\'min : 100 Speed

Del.quantity 3.37: 240.0...290.0 1000H:: (-) Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 350

Contr.-rod tray mm: 4.40...4.60

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Screw in torque-control-spring retainer to make contact at 500 l/min.

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS BASIC SETTING Note inst. in remarks column 1st speed 1/mi: 900 Test sheet : DEE 10.1 A7 : 4.3.87 Edition Contr.-rod trav.mm: 11.60 Superceeded Calibrating oil : ISO-4113 Del.quantity cm3/: 16.0...16.2 Combination no. : 9 400 231 008 100H.: (-) Injection pump Dispersion cm3/:0.4Pump designation : PES6P110A72ORS370 100H.: (-) Governor Governor design. : RSV500...900P0/452DR 2nd speed 1/min: 500 Contr.-rod trav. m: 6.00 Del.quantity cm3/: 19.0...25.0 Customer-spec. information : JOHN DEERE Customer 100H.: (-) Engine : 6619 T SLEEVE POSITION TEST BENCH REQUIREMENTS Control-lever position Degree: -3 1/min: 800 Calibrating-oil inlet temp. OC Speed inlet temp. : 38...42 Cont.-rod travelmm: 0.30...0.70 FULL-LOAD DELIV. AT FULL-LOAD STOP Overflow valve : 1 457 413 010 1st version 1/min: 900 Inlet press., bar : 1.5 Speed Del.quantity cm3/: 160.0...1141.0 1000H.: (157.0...165.0) Calibrating nozzle-holder : 0 681 343 009 assembly HIGHEST RATED SPEED Opening 1st version pressure, bar : 172...175 Control-lever position degrees: 38...46 Test inj. tubing : 1 680 750 015 Testing: 1st c-rod trav.mm : 10.60 Speed 1/min : 945...955 Outside diameter 2nd c-rod trav.mm : 6.20 x Wall thickness Speed 1/min: 985...1015 : 6.00x1.50x600 x Length mm 3rd c-rod trav.mm : 0.30...1.70 1/min : 1100 (A) Injection pump setting values Speed Insp. values in parentheses Set constant delivery quant. LOWEST RATED SPEED I Control-lever per values position degrees: 21...29 START OF DELIVERY Testing: Prestroke mm : 2.75...2.85 1/min : 500 Speed : (2.70...2.90) C-rod trav.mm min : 5.50 Contr.-rod trav.mm: 11.60 C-rod trav.mm : 2.00 Cam sequence : 1-5-3-6-2-4 Speed 1/min : 610...670 TORQUE CONTROL Torque-control curve - 1st version SD ang. spacing CS: 0-60-120-180-240-300 Tolerance + - : 0.50(0.75) 1st speed 1/min: 900 C-rod trav.mm : 11.60

L11

```
2nd speed 1/min: 700
  C-rod trav.mm : 12.10...12.30
3rd speed 1/min: 650
  C-rod trav.mm : 12.45...12.55
4th speed 1/min: 500
  C-rod trav.mm : 12.80
SWITCH-OVER POINT
            1/min: 400...750
Speed
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 650
Del.quantity cm3/: 176.5...179.5

1000H.: (173.5...182.5)

Speed 1/min: 550

Del.quantity cm3/: 135.0...141.0

1000H.: (132.0...144.0)
STARTING FUEL DELIVERY
HIGH IDLE
             1/min : 1000
Speed
Del.quantity cm3/: 47.0...57.0
1000H.: (-)
LOW IDLE
             1/min : 500
Speed
Del.quantity cm3/: 190.0...250.0
             1000H.: (-)
Remarks:
                    : JOHN DEERE NO. AR
                    : 88764
```

BOSCH INJ. PUMP TEST SPECIFICATIONS 270-315-Tolerance + - 0 : 0.50(0.75)Note inst. in remarks column BASIC SETTING : IHC 9.4 A 6 : 11.3.87 Test sheet Edition 1/mi: 1300 1st speed Superceeded Calibrating oil : ISO-4113 Contr.-rod trav.mm: 11.20 Combination no. : 9 400 231 103 Del.quantity cm3/: 12.7...12.9 Injection pump 100H.: (-) Pump designation : PES8P100A921/5RS286 cm3/:0.4Governor Dispersion : RQV350...1300PA624K Governor design. 100H.: (-) Customer-spec. information 2nd speed Customer : IHC 1/min: 350 Contr.-rod trav. m: 5.00 Del.quantity cm3/ : 1.9...2.3 Engine : DVT 800 100H.: (-) cm3/: 0.5 100H.: (-) TEST BENCH REQUIREMENTS Dispersion Calibrating-oil inlet temp. OC : 38...42 SLEEVE POSITION inlet temp. Control-lever position Overflow valve Degree: 63...67 1/min: 1320 : 1 417 413 040 Speed Cont.-rod travelmm: 15.00...17.50 Inlet press., bar : 2.8 FULL-LOAD DELIV. AT FULL-LOAD STOP Calibrating nozzle-holder : 1 688 901 017 assembly 1st version Speed 1/min: 1300 Opening Charge press. hPa : 1200 Del.quantity cm3/: 127.0...129.0 1000H.: (-) : 207 pressure, bar Test inj. tubing : 9 681 230 713 HIGHEST RATED SPEED 1st version Control-lever Outside diameter position degrees: 59...65 x Wall thickness : 6.35x1.70x1001 x Length mm Testing: 1st c-rod trav.mm : 10.20 (A) Injection pump setting values Insp. values in parentheses Set constant delivery quant. 1/min: 1350...1360 Speed 2nd c-rod trav.mm : 4.00 per values \_\_\_\_ 1/min : 1450...1480 Speed 3rd c-rod trav.mm : 0...1.00 Speed 1/min : 1650 START OF DELIVERY Prestroke mm : 2.75...2.95 LOWEST RATED SPEED I : (2,70...3.00) Control-lever Contr.-rod trav.mm: 10.50 position degrees: 10...15 : 1-8-4-2-7-3-6-5 Cam sequence Testing: 1/min : 350 Speed C-rod trav.mm min : 5.10 SD ang. spacing CS: 0-45-90-135-180-225-1/min : 100 Speed : 7.40...8.70 C-rod trav.mm

```
: 2.00
C-rod trav.mm
           1/min : 540...600
Speed
C-rod trav.mm
            1/min : 400...470
Speed
TORQUE CONTROL
Torque-control curve - 1st version
           1/min : 1300
ist speed
                  : 11.20
  C-rod trav.mm
2nd speed
            1/min : 900
 C-rod trav.mm : 10.80...10.90
3rd speed 1/min: 700
                : 10.20...10.30
  C-rod trav.mm
FUEL-DELIVERY CHARACTERISTICS
1st version
Charge press. hPa : 1200
Speed
            1/min : 900
Del.quantity cm3/: 119.0...125.0
            1000H.: (-)
Charge press. hPa : -
Speed 1/min : 800
Del.quantity cm3/: 83.0...91.0)
            1000H.: (-)
STARTING FUEL DELIVERY
HIGH IDLE
1st version
Charge press. hPa : 1200
Speed 1/min : 1505
Contr.-rod trav.mm: 4.00
LOW IDLE
Speed
            1/min : 350
Del.quantity cm3/: 190.0...230.0
1000H.: (-)
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
```

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column : SOF 2.5 G1 : 06.07.87 Test sheet Edition replaces Calibrating oil : ISO 4113 : VE 3/10F1250 R129 Injection pump : 0 460 403 007 Type number Customer-specific information : SOFIM - IVECO Customer : 8135.61.200 Engine TEST BENCH REQUIREMENTS Calibrating-oil C return temp. with thermometer : 40...48 : 42...50 electronically Inlet press., bar: 0,35 Calibrating nozzle-holder assembly : 1 688 901 000 Opening. bar : 147...150 pressure Test inj. tubing : 1 680 750 017 Outside diameter x Wall thickness mm: 840 x Length Start of delivery mm : 0,2 Prestroke (from BDC): +-0.02(0.04)Injection-pump setting values Test specifications in parentheses Timing-device travel: 1/min: 1250 Setting value mm: 3,1...3,5 Supply-pump pressure: Speed 1/min: 1250 Setting value bar: 4,5...5,1 Full-load del. w/out charge press.: Speed 1/min : 1250

L15

Del.quantity cm3/ 1000H.: 42,5...43,5 cm3/: 3,0 Dispersion 1000H.: (3.5) Low-idle speed regulation: 1/min: 400 Del.quantity cm3/ 1000H.: 11,0...15,0 cm3/: 2.5 1000H.: (3,0) Dispersion Full-load speed regulation: 1/min: 1450 Speed Del.quantity cm3/ 1000H: 9,5...15,5 Start: Speed 1/min: 100 Del.quantity cm3/1000H.: 42.0 mind Load-dependent start of delivery: 1/min: 1250 Speed Inspection-pump test specifications Test specifications in parentheses Timing-device characteristic: 1st speed 1/min: 800 TD travel mm: 0,7...1,5 mm: (0.4...1,8) 1/min: 1000 2nd speed mm: 1,7...2,3 mm: (1,3...2,7) 1/min: 1250 TD travel 3rd speed TD travel mm: (2,6...4,0)Supply-pump pressure characteristic: 1/min: 600 1st speed Supply-pump bar: 2,3...2,9 pressure 1/min: 1000 2nd speed Supply-pump pressure bar: 3,7...4,3 Overflow quantity at overflow valve: 1/min: 600 1st speed Oveflow : 55...138 cm3/10s: (40...153) quantity 1/min: 1250 2nd speed

```
Overflow
                     : 55...138
 quantity cm3/10s: (40...153)
Delivery-quant. and breakaway char.:
1st speed
              1/min: 1500
Del.quantity cm3/: 0,0...2,5
1000H.: -
               1/min: 1450
2nd speed
                cm3/: -
Del.quantity
              1000H.: (8,5...16,5)
               1/min: 1400
3rd speed
Del.quantity cm3/: 24,0...30,0
1000H.: (23,0...31,0)
4th speed 1/min: 1250
4th speed 1/min. 2000

1000H.: (40,8...45,2)

5th speed 1/min: 1000
Del.quantity cm3/: 39.0...41.0
1000H.: (37.8...42,2)
6th speed
               1/min: 600
Del.quantity cm3/: 31,0...34,0
1000H.: (29,5...35,5)
Zero delivery (stop):
Mech. shutoff:
               1/min: 1250
Speed
Del.quantity cm3/: -
              1000H.: -
Idle delivery:
Mfg. date: until : -
1st speed
              1/min: 400
Del.quantity cm3/: -
              1000H.: (9,0...17,0)
               1/min: 450
2nd speed
Del.quantity cm3/: 3,0...9,0
1000H.: (2,0...10,0)
               1/min: 500
3rd speed
Del.quantity cm3/: 0,0...2,5
1000H.: -
Automatic starting fuel delivery:
               1/min: 350
1st speed
Del.quantity cm3/: -
               1000H: 42,0
 ind.
2nd speed
               1/min: 450
Del.quantity cm3/: -
               1000H: 40,0
 ax.
Mounting and assembly dimensions:
Designation
                mm
KF
                     : 5,9...6,2
                mm
MS
                mm
                    : 1,4..1,65
SVS max.
                mm
                    : 2,6
```

L16

Note inst. in remarks column

Test sheet : CAS 2.5 A Edition : 16.07.87 replaces : -

replaces : Calibrating oil : ISO 4113

Injection pump : VE 3/10F1025 R276 Type number : 0 460 403 010

Customer-specific information Customer : CASE

Engine : D 155/433

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder assembly : 1 688 901 020

Opening pressure bar: 172...175

Perforated-plate diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800 Setting value mm: 2,2...2,6

setting value mm: 2,2...2,0

Supply-pump pressure:

Speed 1/min: 800 Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Del.quantity cm3/ 1000H.: 60,061,0	Del.quantity cm3/: 0,03,0 1000H.: -
Dispersion cm3/: 2.5 1000H.: (3,5)	2nd speed 1/min: 1170 Del.quantity cm3/: 0,010,0 1000H.: -
Low-idle speed regulation:	3rd speed 1/min: 1120 Del.quantity cm3/: 10,040,0
Speed 1/min: 350 Del.quantity cm3/	1000H.: - 4th speed 1/min: 1090
1000H.; 13,017,0   Dispersion cm3/: 2,5	Del.quantity cm3/: - 1000H.: (35,544,5)
1000H.: (3,5) Full-load speed regulation:	5th speed 1/min: 1000 Del.quantity cm3/: 60,563,5
Speed 1/min: 1090 Del.quantity cm3/ 1000H: 37,043,0	1000H.: (59,564,5) 6th speed 1/min: 800 Del.quantity cm3/: - 1000H.: (58,262,8) 7th speed 1/min: 500
Start:	7th speed 1/min: 500 Del.quantity cm3/: 56,060,0 1000H.: (55,061,0)
Speed 1/min: 100   Del.quantity : ~   mind cm3/1000H.: 75,0	Zero delivery (stop):
Inspection-pump test specifications Test specifications in parentheses	Mech. shutoff: Speed 1/min: 1000 Del.quantity cm3/: 03 1000H.: -
Timing-device characteristic:	Idle delivery:
1st speed 1/min: 600 TD travel mm: 0.71.5 mm: (0.41.8)	Mfg. date: until : - 1st speed  1/min: 350 Del.quantity cm3/: -
2nd speed	1000H.: (11,015,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0
3rd speed 1/min: 1000 TD travel mm: 3,54,3 mm: (3,24,6)	1000H.: -  Automatic starting fuel delivery:
Supply-pump pressure characteristic:	1st speed 1/min: 350 Del.quantity cm3/: -
1st speed 1/min: 500 Supply-pump	ind. 1000H: 70,0
ipressure; bar: 3,03,6 2nd speed 1/min: 1000 Supply-pump	2nd speed 1/min: 450 Del.quantity cm3/: - ax. 1000H: 70,0
pressure bar: 5,05,6	Shutoff electromagnet:
Overflow quantity at overflow valve:	Cut-in
1st speed	min. voltage : - Rated voltage : -
quantity cm3/10s: (2698) 2nd speed	Mounting and assembly dimensions:
quantity cm3/10s: (40153)	Designation K mm : 3,23,4
Delivery-quant. and breakaway char.:  1st speed  1/min: 1200	KF mm : 5,25,5 MS mm : 1,21,45

SVS max. XK XL

mm : 4,6 mm : 20,2...22,2 mm : 8.6...12,0

Note inst. in remarks column

Test sheet : CAS 2.5 B Edition replaces : 16.07.87

Calibrating oil : ISO 4113

Injection pump : VE 3/10F1100 R276-1 Type number : 0 460 403 011

Customer-specific information

Customer

: D 155/533/385 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

pressure bar : 172...175

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800

Setting value mm: 2,2...2,6

Supply-pump pressure:

1/min: 800

Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Del.quantity cm3/ 1000H.: 66,067,0	Del.quantity cm3/: 0,03,0 1000H.: -
Dispersion cm3/: 2,5	2nd speed 1/min: 1230
1000H.: (3,5)	Del.quantity cm3/: 0,010,0 1000H.: -
Low-idle speed regulation:	3rd speed 1/min: 1180
1/min: 350	Del.quantity cm3/: 10,040,0 1000H.: -
Speed 1/min: 350 I Del.quantity cm3/ I	4th speed 1/min: 1150
1000H.: 13,017,0	Del.quantity cm3/: -
Dispersion cm3/: 2.5   1   1000H.: (3.5)	1000H.: (45,554,5) 5th speed 1/min: 1050
Full-load speed regulation:	Del.quantity cm3/: 67.271.2 1000H.: (66,271,2)
Speed 1/min: 1150	6th speed 1/min: 800
Del.quantity cm3/	Del.quantity cm3/: - 1000H.: (64,268,8)
1000H: 67,270,2	1000H.: (64,268,8) 7th speed  1/min: 500
Start:	Del.quantity cm3/: 59,063,0
Speed 1/min: 100	1000H.: (58,064,0)
Speed 1/min: 100	Zero delivery (stop):
mind cm3/1000H.: 75,0	·
Inspection-pump test specifications	Mech. shutoff: Speed 1/min: 1100
Test specifications in parentheses	Del.quantity cm3/: -
	1000H.: -
Timing-device characteristic:	Idle delivery:
1st seed 1/min 400	Mfa data, vatil
1st speed	Mfg. date: until : - 1st speed  1/min: 350
ا (9ر 51ر0) mm:	Del.quantity cm3/: -
2nd speed 1/min: 800   I TD travel   mm: -   I	1000H.: (11,015,0) 2nd speed 1/min: 450
mm: $(1,73,1)$	Del.quantity cm3/: 0,04,0
3rd speed 1/min: 1050   TD travel mm: 3,64,4	1000H.: -
mm: (3,34,7)	Automatic starting fuel delivery:
Supply-pump pressure characteristic:	1st speed 1/min: 350
dappty pump pressure enabled racte.	Del.quantity cm3/: -
1st speed 1/min: 500	ind. 1000H: 80,0
Supply-pump I pressure bar: 2,83,4 I	2nd speed 1/min: 450
2nd speed 1/min: 1050	Del.quantity cm3/: -
Supply-pump 1 pressure bar: 4,95,5	ax. 1000H: 80,0
	Shutoff electromagnet:
Overflow quantity at overflow valve:	Cut-in
1st speed 1/min: 500	min. voltage : -
Oveflow : 4183   quantity cm3/10s: (2698)	Rated voltage : =
2nd speed 1/min: 1050	Mounting and assembly dimensions:
Overfl: 1:55138	Designation
quantity cm3/10s: (40153) i	Designation K mm : 3,23,4
Delivery-quant. and breakaway char.:	KF mm : 5,35,5
1st speed 1/min: 1250	MS mm : 1,21,45

SVS max. mm : 4,3 XK mm : 20,2...22,2 XL mm : 10,0...13,4

Note inst. in remarks column

Test sheet : CAS 2,5 C Edition replaces : 16.07.87

Calibrating oil : ISO 4113

Injection pump : VE 3/10F1090 R276-2

: 0 460 403 012 Type number

Customer-specific information

Customer : CASE

: D 179/633 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar : 172...175 pressure

Perforated-plate

mm : 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 230 Speed

Setting value mm: 4,8...5,2

Supply-pump pressure:

Speed 1/min: 800

Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

```
Del.quantity cm3/
                                                       Del.quantity cm3/: 0,0...3,0
1000H.: -
             1000H.: 73,3...74,3
cm3/: 2,5
1000H.: (3,5)
Dispersion
                                                                     1/min: 1225
                                                       2nd speed
                                                       Del.quantity cm3/: 0,0...10,0
1000H.: -
Low-idle speed regulation:
                                                       3rd speed
                                                                     1/min: 1175
                                                      Del.quantity cms/: 1000H.: -
                                                                     cm3/: 10,0...40,0
Speed
              1/min: 400
Del.quantity
                                                                     1/min: 1145
               cm3/
                                                       4th speed
                                                       Del.quantity cm3/: -
1000H.: (43,5...52,5)
             1000H.: 18,0...22,0
             cm3/: 2,5
1000H.: (3,5)
Dispersion
                                                                     1/min: 1050
                                                       5th speed
                                                       Del.quantity cm3/: 76.5...79.5
1000H.: (75.5...80.5)
Full-load speed regulation:
              1/min: 1145
                                                                     1/min: 800
Speed
                                                       6th speed
                                                      Del.quantity cm3/: -
1000H.: (71,5...76,1)
Del.quantity cm3/
              1000H: 45,0...51,0
                                                                     1/min: 500
                                                       7th speed
                                                      Del.quantity cm3/: 70,5...74,5
Start:
                                                                    1000H.: (69,5...75,5)
Speed
              1/min: 100
Del.quantity
                                                       Zero delivery (stop):
mind cm3/1000H.: 60,0
                                                       Mech. shutoff:
Inspection-pump test specifications
                                                       Speed
                                                                     1/min: 1050
Test specifications in parentheses
                                                       Del.quantity cm3/: -
                                                                    1000Ha: -
Timing-device characteristic:
                                                       Idle delivery:
1st speed
              1/min: 500
                                                       Mfg. date: until : -
              mm: 2,4...3,2
mm: (2,1...3,5)
1/min: 800
                                                                   1/min: 400
TD travel
                                                       ist speed
                                                      Del.quantity cm3/: -
1000H.: (16,0..24,0)
2nd speed
TD travel
                                                                     1/min: 550
                  mm:
                                                       2nd speed
                                                      Del.quantity cm3/: 0,0...4,0
1000H.: -
                 mm: (4,3...5,7)
              1/min: 1050
3rd speed
                 mm: 6,1...6,9
mm: (5,8...7,2)
TD travel
                                                       Automatic starting fuel delivery:
                                                                     1/min: 350
Supply-pump pressure characteristic:
                                                       1st speed
                                                       Deliquantity cm3/:
              1/min: 500
                                                                     1000H: 80,0
                                                        ind.
1st speed
Supply-pump
                bar: 3,1...3,7
 pressure
                                                                     1/min: 450
                                                       2nd speed
2nd speed
              1/min: 1050
                                                       Del.quantity cm3/: -
                                                                     1000H: 80,0
Supply-pump
                                                        ax.
                bar: 5,1...5,7
 pressure
                                                       Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                      Cut-in
              1/min: 500
1st speed
                                                        min. voltage
                    : 41...83
Oveflow
                                                      Rated voltage
            cm3/10s: (26...98)
 quantity
             1/min: 1050
2nd speed
                                                      Mounting and assembly dimensions:
Over flow
                   : 55...138
quantity cm3/10s: (40...153)
                                                      Designation
                                                                          : 3,2...3,4
: 5,2...5,5
: 1,7..1,95
                                                      K
                                                                      mm
                                                      KF
                                                                      mm
Delivery-quant. and breakaway char.:
1st speed 1/min: 1300
                                                      MS
                                                                      mm
```

L24

SVS max. mm : 2,1 Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet Edition replaces : FIA 1.7 H1 : 14.07.87 : 18.12.86 Calibrating oil : ISO 4113 Injection pump : VE 4/10F2050 R192 Type number : 0 460 404 040 Customer-specific information Customer : IVECO-SOFIM Engine : 8144.91.200 TEST BENCH REQUIREMENTS Calibrating-oil return temp. C with thermometer : 40...48 electronically : 42...50 Inlet press., bar : 0,35 Calibrating nozzle-holder assembly : 1 688 901 000 Opening pressure bar : 147...150 Test inj. tubing : 1 680 750 017 Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length Start of delivery Prestroke mm: 0,3 (from BDC): +-0.02(0.04)Injection-pump setting values Test specifications in parentheses Timing-device travel: 1/min: 1500 Speed

Charge press. hPa: 800 Setting value mm: 6,6...7,0

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 800 Setting value bar: 6,6...7,2

Full-load del. with charge press.:

1/min: 600 1st speed 1/min: 1500 Charge press. hPa: 800 Speed Charge press. hPa: 800
Del.quantity cm3/
1000H: 56,0...57,0
Dispersion cm3/: 3,0
1000H: (3,5) Supply-pump bar: 4,1...4,7 pressure 1/min: 2050 2nd speed Charge press. hPa: 800 Supply-pump bar: 8,2...8,8 pressure Full-load del. w/out charge press.: Overflow quantity at overflow valve: 1/min : 600 Speed Del.quantity cm3/ 1st speed 1/min: 600 1000H.: 43,5...44,5 Charge press. hPa: 800 : 41...83 Oveflow quantity cm3/10s: (26...98) Low-idle speed regulation: 2nd speed 1/min: 2050 Charge press. hPa: 800 Speed 1/min: 400 Overflow : 55...138 Charge press. hPa: cm3/ quantity cm3/10s: (40...153) Deliguantity 1000H.: 9,0...13,0 cm3/: 3,0 1000H.: (3,5) Delivery-quant. and breakaway char.: Dispersion 1st speed 1/min: 800 Full-load speed regulation: Charge-air pressure-setting point hPa: 250 LDA stroke Speed 1/min: 2250 mm: 4,5 Del.quantity cm3/: -1000H.: (49.5...54.5) 2nd speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/ 1000H: 34,5...40,5 Charge press. hPa: 800
Del.quantity cm3/: 0,0...3,0
1000H.: -Start: 1/min: 2350 1/min: 100 Speed 3rd speed Charge press. hPa: 800
Del.quantity cm3/: 1.5...8.5
1000H.: (1.0...9.0) Del.quantity cm3/1000H.: 44,0 mind 1/min: 2250 Load-dependent start of delivery: 4th speed Charge press. hPa: 800
Del.quantity cm3/: 1000H.: (33,5...41,5)
5th speed 1/min: 2050 Speed 1/min: 1500 Inspection-pump test specifications Charge press. hPa: 800
Del.quantity cm3/: 48,5...51,5
1000H.: (47,8...52,2) Test specifications in parentheses 1/min: 1500 Timing-device characteristic: 6th speed Charge press. hPa: 800 Del.quantity cm3/: -1000H.: (54,5...58,5) 1/min: 600 1st speed Charge press. hPa: 800 mm: 2,1...2,9 mm: (1,8...3,2) 1/min: 600 ID travel 7th speed Charge press. hPa: -Deliguantity cm3/: -1000H.: (41,5...46,5) 1/min: 1500 2nd speed Charge press. hPa: 800 TD travel mm: mm: (6,3...7,3) 1/min: 2050 Zero delivery (stop): 3rd speed Charge press. hPa: 800 Electr. shutoff: Speed 1 in: 400 mm: 7,8...8,6 mm: (7,5...8,9) TD travel ELAB .olt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Supply-pump pressure characteristic:

```
Idle delivery:
Mfg. date: until : -
1st speed
             1/min: 400
Del.quantity cm3/: -
1000H.: (7,0...15,0)
              1/min: 450
2nd speed
Del.quantity cm3/: 1.5...6.5
1000H.: (0,0...8,0)
Automatic starting fuel delivery:
1st speed
              1/min: 450
Deliquentity cm3/: -
              1000H: 47,0
 ind.
2nd speed
              1/min: 500
Del.quantity cm3/: -
              1000H: 42,0
Shutoff electromagnet:
Cut-in
min. voltage
                   : 10,0
Rated voltage
                  : 12,0
Mounting and assembly dimensions:
Designation
               mm
KF
                   : 5,7...6,0
               mm
MS
               mm
SVS max.
               mm
```

: 1,2...1,4 : 2,2 : 17,0...19,0 : 11,4...14,8 XK mm XL mm

## Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column : VMA 2,2 F : 20.07.87 Test sheet Edition replaces Calibrating oil : 1SO 4113 Injection pump : VE 4/10F2100 L269 : 0 460 404 050 Type number Customer-specific information Customer : MOTORI VM Engine : HR 492.4HJ TEST BENCH REQUIREMENTS Calibrating-oil C return temp. with thermometer : 40...48 : 42...50 electronically Inlet press., bar : 0,35 Calibrating nozzle-holder : 1 688 901 000 assembly Opening. bar: 147...150 pressure Test inj. tubing : 1 680 750 017 Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length Injection-pump setting values Test specifications in parentheses Timing-device travel: 1/min: 1500 Speed Charge press. hPa: 1000 Setting value mm: 4,3...4,7 Supply-pump pressure: 1/min: 1500 Speed Charge press. hPa: 1000 Setting value bar: 5,9...6,5 Full-load del. with charge press.: 1/min: 1500 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 66,0...67,0 cm3/:3,0Dispersion 1000H : (3,5) Full-load del. w/out charge press.: 1/min : 700 Speed Deliquantity cm3/ 1000H.: 53,0...54,0 Low-idle speed regulation: Speed 1/min: 425 Charge press. hPa: -Deliquantity cm3/ 1000H.: 13.0...17.0 cm3/: 3.0\_ Dispersion 1000H.: (3,5) Full-load speed regulation: 1/min: 2100 Speed Charge press. hPa: 1000 Del.quantity cm3/ 1000H: 57,7...60,7 Start: 1/min: 100 Speed Charge press. hPa: -Del. quantity mind ' cm3/1000H.: 55.0 Load-dependent start of delivery: Speed 1/min: 1500 Charge press. hPa: -Inspection-pump test specifications Test specifications in parentheses Timing-device characteristic: 1/min: 1000 1st speed hPa: 1000 Charge press. TD travel mm: 1,3...2,1 mm: (1,0...2,4) 1/min: 1500 2nd speed Charge press. hPa: 1000 TD travel mm: mm: (3,8...5,2)1/min: 2100 3rd speed Charge press. hPa: 1000 mm: 7,1...7,9 TD travel mm: (6,8...8,2) Supply-pump pressure characteristic: 1/min: 500 1st speed

```
Charge press. hPa: 1000
Supply-pump
                                                     Idle delivery:
                bar: 3,1...3,7
 pressure
              1/min: 2100
                                                     Mfg. date: until
2nd speed
                hPa: 1000
                                                     1st speed
                                                                   1/min: 425
Charge press.
                                                     Del.quantity cm3/: -
1000H.: (10,5..19,5)
Supply-pump
 pressure
                bar: 7,5...8,1
                                                                   1/min: 450
                                                     2nd speed
                                                     Del.quantity cm3/: 7,5...12,5
Overflow quantity at overflow valve:
                                                                  1000H.: (5,5...14,5)
                                                                   1/min: 500
              1/min: 500
                                                     3rd speed
1st speed
                                                     Del.quantity cm3/: 0,5...5,5
1000H.: (0,0...7,5)
Charge press. hPa:
Oveflow
                    : 41...83
 quantity cm3/10s: (26...98)
              1/min: 2100
2nd speed
                                                     Automatic starting fuel delivery:
Charge press. hPa: 1000
Over Flow
                   : 55...138
                                                     1st speed
                                                                    1/min: 400
 quantity cm3/10s: (40...153)
                                                     Del.quantity cm3/:
                                                                    1000H: 55,0
                                                      ind.
Delivery-quant. and breakaway char.:
1st speed
             1/min: 700
                                                     2nd speed
                                                                   1/min: 550
                                                     Del.quantity
                                                                    cm3/: -
Charge-air pressure-setting
                                                                   1000H: 57,0
 point
                hPa: 450
               cm3/: 62,0...63,0
Del.quantity
             1000H.: (59,9...65,1)
                                                     Shutoff electromagnet:
              1/min: 2450
2nd speed
Charge press. hPa: 1000
                                                     Cut-in
Del.quantity cm3/: 0,0...8,5)
                                                                         : 10,0
                                                      min. voltage
                                                     Rated voltage
                                                                         : 12,0
3rd speed
              1/min: 2300
Charge press. hPa: 1000
Del.quantity cm3/: 27.0...33.0
1000H.: (25.5...34.5)
                                                     Mounting and assembly dimensions:
                                                     Designation
                                                                         : 3,2...3,4
: 5,7...6,0
4th speed
              1/min: 2100
                                                     K
                                                                    mm
                                                     KF
Charge press. hPa: 1000
                                                                     mm
Del.quantity cm3/: -
1000H.: (56,6...61,8)
                                                                         : 0,9..0,95
                                                     MS
                                                                    mm
                                                                         : 4,6
                                                     SVS max.
                                                                    mm
5th speed
              1/min: 1500
Charge press. hPa: 1000
                                                     Remarks:
              cm3/: -
Deliquantity
             1000H.: (63,9...69,1)
              1/min: 700
                                                     Correction at adjusting nut (46)
6th speed
Charge press. hPa: 1000
Del.quantity cm3/: 67.5...70.5
1000H.: (65.6...72.4)
              1/min: 700
7th speed
Charge press. hPa:
Del.quantity cm3/:
             1000H.: (50,9...56,1)
8th speed
              1/min: 600
Charge press. hPa: -
              cm3/: 52,5...54,5
Del.quantity
              1000H: (50,1...56,9)
Zero delivery (stop):
Mech. shutoff:
              1/min: 2100
Speed
Del.quantity cm3/: -
1000H.: -
M02
```

Full-load del. w/out charge press.: BOSCH-INJ.-PUMP TEST SPECIFICATIONS 1/min : 800 Del.quantity cm3/ 1000H.: 75,0...76,0 Note inst. in remarks column : CAS 3,9 A : 17.07.87 Test sheet cm3/: 3.0Dispersion Edition 1000H.: (3,5) replaces Low-idle speed regulation: Calibrating oil : ISO 4113 1/min: 350 Injection pump : VE 4/10F1150 R283 Speed Del.quantity cm3/ 1000H.: 18,0...22,0 : 0 460 404 052 Type number cm3/: 3.0 1000H.: (3,5) Customer-specific information Dispersion Customer : CASE Full-load speed regulation: : D 239/745 Engine 1/min: 1215 TEST BENCH REQUIREMENTS Del.quantity cm3/ 1000H: 42,0...48,0 Calibrating-oil oC return temp. Start: with thermometer : 40...48 Speed electronically : 42...50 1/min: 100 Del.quantity cm3/1000H.: 80.0 Inlet press., bar: 0,35 mind Calibrating nozzle-holder Inspection-pump test specifications : 1 688 901 020 Test specifications in parentheses assembly Opening bar: 172...175 Timing-device characteristic: pressure Perforated-plate 1/min: 500 1st speed mm: 1,7...2,5 diameter mm : 0.6TD travel mm: (1, 4, ..., 2, 8)1/min: 800 2nd speed Test inj. tubing : 1 680 750 017 TD travel mm: mm: (3,7...5,1) 1/min: 1100 Outside diameter 3rd speed : 6 mm: 6,2...7,0 mm: (5,9...7,3) TD travel x Wall thickness : 2 x Length mm : 840 Start of delivery Supply-pump pressure characteristic: Prestroke mm : 0,2 (from BDC): +-0.02(0.04)1/min: 500 1st speed Supply-pump pressure bar: 4,1...4,7 Injection-pump setting values Test specifications in parentheses 2nd speed 1/min: 1100 Supply-pump Timing-device travel: bar: 6,3...6,9 pressure Overflow quantity at overflow valve: 1/min: 800 Speed Setting value mm: 4,2...4,6 1st speed Oveflow 1/min: 500 : 41...83 Supply-pump pressure: quantity cm3/10s: (26...98) 2nd speed 1/min: 1100 1/min: 800 Speed : 55...138 Overflow Setting value bar: 5,3...5,9 quantity cm3/10s: (40...153)

```
Delivery-quant. and breakaway char.:
1st speed
             1/min: 1350
Del.quantity cm3/: 0,0...3,0
1000H.: -
              1/min: 1275
Znd speed
               cm3/: 0,0...10,0
Del.quantity
             1000H.: -
              1/min: 1225
3rd speed
              cm3/: 10,0...46,0
Del.quantity
             1000H.:
              1/min: 1215
4th speed
Del.quantity
              cm3/: -
1000H.: (40,5...49,5)
5th speed 1/min: 1100
Del.quantity cm3/: 73,0...76,0
             1000H.: (72,0...77,0)
              1/min: 800
6th speed
Del.quantity cm3/: -
1000H.: (73,2...77,8)
7th speed
              1/min: 500
Del.quantity cm3/: 07,0....74,0)
Zero delivery (stop):
Mech. shutoff:
Speed
              1/min: 1100
Del.guantity cm3/: 0..3
Idle delivery:
Mfg. date: until : -
             1/min: 350
1st speed
Deliquantity cm3/: -
             1000H.: (16,0..24,0)
              1/min: 500°
2nd speed
Del.quantity cm3/: 0,0...4,0
1000H.: -
Automatic starting fue! delivery:
              1/min: 350
1st speed
Deliquentity
               cm3/: -
              1000H: 80,0
 ind.
              1/min: 450
2nd speed
Del.quantity
               cm3/: -
              1000H: 80,0
 ax.
Shutoff electromagnet:
Cut-in
min. voltage
Rated voltage
Mounting and assembly dimensions:
Designation
               mm
```

M04

KF mm : 5,1..5,4
MS mm : 1,3..1,55
SVS max. mm : 3,6
XK mm : 20,2...22,2
XL mm : 9,3...12,7

Note inst. in remarks column

Test sheet : CAS 3.9 B Edition : 09.07.87 replaces : -

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283 Type number : 0 460 404 052

Customer Part-No.: 1329 125 C1

Customer-specific information

Customer : CASE

Engine : D 239/743

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening -

pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,2 (from BDC): +-0.02

Indicator setting:

Piston stroke mm: 1.0 **Outlet** 

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 800 Speed

Setting value mm: 4,2...4,6

Supply-pump pressure:

```
Setting value bar: 5,3...5,9
                                                       Overflow
                                                                           : 55...138
                                                        quantity cm3/10s: (40...153)
Full-load del. w/out charge press.:
                                                       Delivery-quant. and breakaway char.:
                                                                     1/min: 1300
             1/min : 800
                                                       1st speed
Speed
                                                       Del.quantity cm3/: 0,0...3,0
1000H.: -
Del.quantity cm3/
              1000H.: 67,5...68,5
                cm3/: 3.0
                                                                      1/min: 1260
Dispersion
                                                       2nd speed
                                                       Del.quantity cm3/: 0,0...10,0
1000H.: -
              1000H.: (3,5)
Low-idle speed regulation:
                                                       3rd speed
                                                                      1/min: 1210
                                                       Del.quantity cm3/: 0,0...10,0
                                                                     1000H.:
Speed
               1/min: 350
Del.quantity cm3/
1000H.: 18,0...22,0
                                                                      1/min: 1190
                                                       4th speed
                                                       Del.quantity cm3/: -
1000H.: (40,5...49,5)
                cm3/: 3,0
Dispersion
             1000H.: (3,5)
                                                                      1/min: 1100
                                                       5th speed
                                                       Del.quantity cm3/: 03.0...68,0)
Full-load speed regulation:
                                                                      1/min: 800
               1/min: 1190
                                                       6th speed
Speed
                                                       Del.quantity cm3/: -

1000H.: (65,3...70,7)

7th speed 1/min: 500

Del.quantity cm3/: 58,5...62,5

1000H.: (57,1...63,9)
Del.quantity
               cm3/
               1000H: 42,0...48,0
Start:
               1/min: 100
Speed
Del.quantity
                                                       Zero delivery (stop):
         cm3/1000H.: 80,0
mind
                                                       Mech. shutoff:
                                                                      1/min: 1100
Inspection-pump test specifications
                                                       Speed
                                                       Del.quantity cm3/: - 1000H.: -
Test specifications in parentheses
Timing-device characteristic:
                                                       Idle delivery:
1st speed
               1/min: 500
                                                       Mfg. date: until : -
                                                                    1/min: 350
TD travel
                  mm: 1,7...2,5
                                                       1st speed
                                                       Del.quantity cm3/: -
1000H.: (15,5..24,5)
                  mm: (1,4...2,8)
               1/min: 800
2nd speed
                                                                      1/min: 500
TD travel
                  mm: -
                                                       2nd speed
                  mm: (3,7...5,1)
                                                       Del.quantity cm3/: 0,0...4,0
1000H.: -
               1/min: 1100
3rd speed
                  mm: 6,2...7,0
mm: (5,9...7,3)
TD travel
                                                       Automatic starting fuel delivery:
                                                                      1/min: 350
Supply-pump pressure characteristic:
                                                       1st speed
                                                       Del.quantity cm3/: -
              1/min: 500
                                                        ind.
                                                                      1000H: 80,0
1st speed
Supply-pump
                 bar: 4,1...4,7
                                                       2nd speed
                                                                      1/min: 450
 pressure
              1/min: 1100
                                                       Del.quantity
2nd speed
                                                                      cm3/:
Supply-pump
                                                                      1000H: 80,0
                                                        ax.
 pressure
                 bar: 6,3...6,9
                                                       Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                       Cut-in
              1/min: 500
                                                        min. voltage
1st speed
                    : 41...83
Oveflow
                                                       Rated voltage
            cm3/10s: (26...98)
1/min: 1100
 quantity
                                                       Mounting and assembly dimensions:
2nd speed
M06
```

Designation K KF MS SVS max. XK XL : 5,1...5,4 : 1,3..1,55 : 3,6 : 20,2...22,2 : 9,3...12,7 mm mm mm mm mm

mm

BU. IFINJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3.9 C Edition : 09.07.87

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283 Type number : 0\_460\_404\_052

Customer Part-No.: 1329 126 C1

Customer-specific information

Customer : CASE

Engine : D 239/644

TÉST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,2

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet

Start of delivery block Piston stroke mm: -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800

Setting value mm: 4,2...4,6

```
: 41...83
cm3/10s: (26...98)
1/min: 1050
Supply-pump pressure:
                                                       Oveflow
                                                        quantity
              1/min: 800
                                                       2nd speed
                                                       Over flow
                                                                          : 55...138
Setting value bar: 5,3...5,9
                                                        quantity cm3/10s: (40...153)
Full-load del. w/out charge press.:
                                                       Delivery-quant. and breakaway char.:
Speed
             1/min : 800
                                                       1st speed
                                                                     1/min: 1200
Del.quantity cm3/
                                                       Del.quantity cm3/: 0,0...3,0
             1000H.: 70,0...71,0 cm3/: 3,0
                                                                    1000H.:
Dispersion
                                                                     1/min: 1180
                                                       2nd speed
                                                       Del.quantity cm3/: 0,0...10,0
1000H.: -
             1000H.: (3,5)
Low-idle speed regulation:
                                                                     1/min: 1130
                                                       3rd speed
                                                       Del.quentity cm3/: 0,0...10,0
1000H.: -
              1/min: 350
                                                                     1/min: 1100
Del.quantity cm3/
                                                       4th speed
             1000H.: 18,0...22,0
                                                       Del.quantity cm3/: -
1000H.: (40,5...49,5)
             cm3/: 3,0
1000H.: (3,5)
Dispersion
                                                                     1/min: 1000
                                                       5th speed
                                                      Del.quantity cm3/: 69.5...72.5
1000H.: (68.3...73.7)
6th speed 1/min: 800
Full-load speed regulation:
Speed
              1/min: 1100
                                                      Del.quantity cm3/: - 1000H: (67,8...73,2)
Del.quantity cm3/
              1000H: 42,0...48,0
                                                                     1/min: 500
                                                       7th speed
                                                       Del.quantity cm3/: 62,5...66,5
Start:
                                                                    1000H.: (61,1...67,9)
              1/min: 100
Speed
Del.quantity
                                                       Zero delivery (stop):
        cm3/1000H.: 80,0
mind
                                                       Mech. shutoff:
                                                                     1/min: 1000
Inspection-pump test specifications
                                                       Speed
                                                       Del.quantity cm3/: -
1000H.: -
Test specifications in parentheses
Timing-device characteristic:
                                                       Idle delivery:
1st speed
              1/min: 500
                                                       Mfg. date: until : -
                 mm: 1,7...2,5
mm: (1,4...2,8)
                                                                    1/min: 350
TD travel
                                                       1st speed
                                                      Del.quantity cm3/: -
1000H.: (15,5..24,5)
              1/min: 800
2nd speed
                                                                     1/min: 500
TD travel
                  mm: -
                                                       2nd speed
                                                       Del.quantity cm3/: 0,0...4,0
1000H.: -
                  mm: (3,7...5,1)
              1/min: 1000
3rd speed
                 mm: 5,4...6,2
mm: (5,1...6,5)
TD travel
                                                       Automatic starting fuel delivery:
                                                                     1/min: 350
Supply-pump pressure characteristic:
                                                       1st speed
                                                       Del.quantity
                                                                     cm3/:
              1/min: 500
                                                                     1000H: 80,0
1st speed
                                                        ind.
Supply-pump
                bar: 4,1...4,7
                                                       2nd speed
                                                                     1/min: 450
pressure
              1/min: 1000
                                                       Del.quantity
                                                                     cm3/: -
2nd speed
                                                                     1000H: 80,0
Supply-pump
 pressure
                bar: 5,9...6,5
                                                       Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                       Cut-in
1st speed
              1/min: 500
                                                        min. voltage
M09
```

Rated voltage : -

Mounting and assembly dimensions:

Designation K KF MS SVS max. XK XL mm 5,1...5,4 : 1,3..1,55 : 3,6 : 20,2...22,2 : 9,3...12,7 mm mm mm

mm mm

Note inst. in remarks column

Test sheet : CAS 3.9 D Edition : 09.07.87 replaces : -

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283 Type number : 0\_460 404 052

Customer Part-No.: 1329 127 C1

Customer-specific information

Customer : CASE

Engine : D 239/F-684 WT

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

Prestroke mm: 0,2

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet |

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800

Setting value mm: 4,2...4,6

Supply-pump pressure:

```
Setting value bar: 5,3...5,9
                                                        Over flow
                                                                             : 55...138
                                                          quantity cm3/10s: (40...153)
Full-load del. w/out charge press.:
                                                        Delivery-quant. and breakaway char.:
              1/min : 800
                                                                       1/min: 1350
Speed
                                                        1st speed
                                                        Del.quantity cm3/: 0,0...3,0
Deliquentity cm3/
              1000H.: 70.0...71.0
cm3/: 3.0
                                                                      1000H.: -
Dispersion
                                                                       1/min: 1270
                                                        2nd speed
                                                        Del.quantity cm3/: 0,0...10,0
1000H.: -
              1000H.: (3,5)
                                                                       1/min: 1220
Low-idle speed regulation:
                                                        3rd speed
                                                        Del.quantity cm3/: 0,0...10,0
1000H.: -
               1/min: 350
Speed
Del.quantity cm3/
1000H.: 18.0...22.0
Dispersion cm3/: 3.0
1000H.: (3.5)
                                                                       1/min: 1210
                                                         4th speed
                                                        Del.quantity cm3/: -
1000H.: (40,0...49,0)
                                                                       1/min: 1150
                                                        5th speed
                                                        Del.quantity cm3/: 65,2...68,2
1000H.: (64,0...69,4)
Full-load speed regulation:
               1/min: 1210
                                                                       1/min: 800
Speed
                                                        6th speed
                                                        Del.quantity cm3/: -
1000H.: (67,8...73,2)
7th speed 1/min: 500
Del.quantity cm3/: 61,2...65,2
1000H.: (59,8...66,6)
Del.quantity
               cm3/
               1000H: 41,5...47,5
Start:
Speed
               1/min: 100
                                                        Zero delivery (stop):
Del.quantity
         cm3/1000H.: 80,0
mind
                                                        Mech. shutoff:
                                                                       1/min: 1150
                                                        Speed
Inspection-pump test specifications
                                                        Del.quantity cm3/: - 1000H.: -
Test specifications in parentheses
Timing-device characteristic:
                                                        Idle delivery:
               1/min: 500
                                                        Mfg. date: until : -
1st speed
TD travel
                  mm: 1,7...2,5
                                                        1st speed
                                                                       1/min: 350
                                                        Del.quantity cm3/: -
                  mm: (1,4...2,8)
                                                                      1000H.: (15,5..24,5)
1/min: 500
               1/min: 800
2nd speed
TD travel
                  mm:
                                                        2nd speed
               mm: (3,7...5,1)
1/min: 1150
                                                        Del.quantity cm3/: 0,0...4,0
1000H.: -
3rd speed
                  mm: 6,6...7.4
TD travel
                                                        Automatic starting fuel delivery:
                  mm: (6,3...7,7)
                                                                       1/min: 350
Supply-pump pressure characteristic:
                                                        1st speed
                                                        Del.quantity cm3/: -
                                                                       1000H: 80,0
               1/min: 500
1st speed
                                                         ind,
Supply-pump
                 bar: 4,1...4,7
                                                                       1/min: 450
                                                        2nd speed
 pressure
2nd speed
               1/min: 1150
                                                        Del.quantity cm3/: -
                                                                       1000H: 80,0
Supply-pump
                 bar: 6,5...7,1
 pressure
                                                        Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                        Cut-in
               1/min: 500
1st speed
                                                         min. voltage
                    : 41...83
                                                        Rated voltage
Oveflow
 quantity cm3/10s: (26...98)
              1/min: 1150
                                                        Mounting and assembly dimensions:
2nd speed
M12
```

Designation K KF MS SVS max. XK XL : 5,1...5,4 : 1,3..1,55 : 3,6 : 20,2...22,2 : 9,3...12,7 mm mm mm mm mm

mm

Note inst. in remarks column

Test sheet : CAS 3.9 E Edition : 09.07.87

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283 Type number : 0\_460 404 052

Customer Part-No.: 1329 128 C1

Customer-specific information

Customer : CASE

Engine : D 239/684

TEST BENCH REQUIREMENTS

Calibrating-pil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,2

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800

Setting value mm: 4,2...4,6

Supply-pump pressure:

```
Setting value bar: 5,3...5,9
                                                          Overflow |
                                                                                : 55...138
                                                           quantity cm3/10s: (40...153)
Full-load del. w/out charge press.:
                                                          Delivery-quant. and breakaway char.:
              1/min : 800
                                                          1st speed
                                                                         1/min: 1400
Del.quantity cm3/
1000H.: 73,5...74,5
Dispersion cm3/: 3,0
                                                          Del.quantity cm3/: 0,0...3,0
1000H.: -
                                                                          1/min: 1310
                                                          2nd speed
                                                          Del.quantity cm3/: 0,0...10,0
1000H.: -
              1000H.: (3,5)
                                                                          1/min: 1260
Low-idle speed regulation:
                                                          3rd speed
                                                          Del.quantity cm3/: 0,0...10,0
1000H.: -
Speed
               1/min: 350
                                                                          1/min: 1250
Del.quantity cm3/
                                                          4th speed
              1000H.: 18,0...22,0
cm3/: 3,0
1000H.: (3,5)
                                                          Del.quantity cm3/: -
1000H.: (41,5...50,5)

5th speed 1/min: 1150

Del.quantity cm3/: 70,0...73,0
1000H.: (68,8...74,2)
Dispersion
Full-load speed regulation:
                                                                          1/min: 800
               1/min: 1250
                                                          6th speed
                                                          Del.quantity cm3/: -
1000H.: (71,3...76,7)
Del.quantity cm3/
               1000H: 43,0...49,0
                                                                          1/min: 500
                                                          7th speed
                                                          Del.quantity cm3/: 66.7...70.7
1000H.: (65,3...72,1)
Start:
               1/min: 100
Speed
                                                          Zero delivery (stop):
Del.quantity
       cm3/1000H.: 80,0
mind
                                                          Mech. shutoff:
Inspection-pump test specifications
                                                          Speed
                                                                         1/min: 1150
                                                          Del.quantity cm3/: - 1000H.: -
Test specifications in parentheses
Timing-device characteristic:
                                                          Idle delivery:
                1/min: 500
                                                          Mfg. date: until : -
1st speed
                                                                         1/min: 350
TD travel
                   mm: 1,7...2,5
                                                          1st speed
                                                          Del.quantity cm3/: -
1000H.: (15,5..24,5)
                   mm: (1,4...2,8)
                1/min: 800
2nd speed
                                                                          1/min: 500
                                                          2nd speed
TD travel
                   mm: -
               mm: (3,7...5,1)
1/min: 1150
                                                          Del.quantity cm3/: 0,0...4,0
1000H.: -
3rd speed
                   mm: 6,6...7,4
mm: (6,3...7,7)
TD travel
                                                          Automatic starting fuel delivery:
                                                                          1/min: 350
Supply-pump pressure characteristic:
                                                          1st speed
                                                          Del.quantity cm3/: ~
                                                                          1000H: 80.0
               1/min: 500
1st speed
                                                           ind.
Supply-pump
               bar: 4,1...4,7
1/min: 1150
                                                                          1/min: 450
 pressure
                                                          2nd speed
                                                          Del.quantity cm3/: -
ax. 1000H: 80,0
2nd speed
Supply-pump
                 bar: 6,6...7,4
 pressure
                                                          Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                          Cut-in
               1/min: 500
1st speed
                                                           min. voltage
                    : 41...83
                                                          Rated voltage
Oveflow
            cm3/10s: (26...98)
1/min: 1150
 quantity
2nd speed
                                                          Mounting and assembly dimensions:
```

M15

Designation
K
KF
MS
SVS max.
XK
XL mm : 5,1...5,4 : 1,3..1,55 : 3,6 : 20,2...22,2 : 9,3...12,7 mm mm mm

mm mm

Note inst. in remarks column

Test sheet : CAS 3,9 F : 09.07.87 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283 Type number : 0 460 404 052 Customer Part-No. : 1329 136 C1

Customer-specific information

: CASE Customer

: D 206/733 WT Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,2

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800

Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800

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```
Setting value bar: 5,3...5,9
                                                                         : 55...138
                                                     Over flow
                                                       quantity cm3/10s: (40...153)
Full-load del. w/out charge press.:
                                                     Delivery-quant. and breakaway char.:
             1/min : 800
                                                                   1/min: 1250
Speed
                                                     1st speed
                                                     Del.quantity cm3/: 0,0...3,0
Del.quantity cm3/
             1000Н.: 70,8...71,8
                                                                   1000H.: -
             cm3/: 3,0
1000H.: (3,5)
Dispersion
                                                                    1/min: 1200
                                                     2nd speed
                                                     Del.quantity cm3/: 0,0...10,0
1000H.: -
                                                                    1/min: 1150
Low-idle speed regulation:
                                                     3rd speed
                                                     Del.quantity cms/.
                                                                   cm3/: 0,0...10,0
Speed
              1/min: 350
Del.quantity cm3/
                                                                    1/min: 1130
                                                      4th speed
                                                     Del.quantity cm3/: -
1000H.: (34,0...43,0)
             1000H.: 18,0...22,0
             cm3/: 3,0
1000H.: (3,5)
Dispersion
                                                     5th speed
                                                                    1/min: 1050
                                                     Del.quantity cm3/: 67,6...73,0)
Full-load speed regulation:
                                                                   1/min: 800
              1/min: 1130
Speed
                                                     6th speed
                                                     Del.quantity cm3/: -
1000H.: (68,6...74,0)
7th speed 1/min: 500
Del.quantity
               cm3/
              1000H: 35,5....41,5
                                                     Del.quantity cm3/: 62,9...66,9
Start:
                                                                   1000H.: (61,5...68,3)
              1/min: 100
Speed
Del.quantity
                                                     Zero delivery (stop):
        cm3/1000H.: 80,0
mind
                                                     Mech. shutoff:
                                                                    1/min: 1050
Inspection-pump test specifications
                                                     Speed
                                                     Del.quantity cm3/: -
Test specifications in parentheses
                                                                   1000H.: -
Timing-device characteristic:
                                                     Idle delivery:
              1/min: 500
                                                     Mfg. date: until
1st speed
                 mm: 1,7...2,5
mm: (1,4...2,8)
TD travel
                                                     1st speed
                                                                   1/min: 350
                                                     Del.quantity cms/: -
1000H.: (15,5..24,5)
              1/min: 800
2nd speed
                                                                   1/min: 500
TD travel
                                                     2nd speed
                 mm:
                 mm: (3,7...5,1)
                                                     Del.quantity cm3/: 0,0...4,0
                                                                  1000H.: -
3rd speed
              1/min: 1050
                 mm: 5<sub>2</sub>8<sub>...6</sub>6
TD travel
                 mm: (5, 5, ...6, 9)
                                                     Automatic starting fuel delivery:
                                                                    1/min: 350
Supply-pump pressure characteristic:
                                                     1st speed
                                                     Del.quantity cm3/: -
                                                                    1000H: 80,0
1st speed
              1/min: 500
                                                      ind.
Supply-pump
                bar: 4,1...4,7
                                                                    1/min: 450
pressure
                                                     2nd speed
                                                     Del.quantity
2nd speed
              1/min: 1050
                                                                    cm3/: -
Supply-pump
                                                                   1000H: 80,0
                                                      ax.
                bar: 6,1...6,7
 pressure
                                                     Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                     Cut-in
              1/min: 500
1st speed
                                                      min. voltage
Oveflow
                    : 41...83
                                                     Rated voltage
            cm3/10s: (26...98)
 quantity |
              1/min: 1050
                                                     Mounting and assembly dimensions:
2nd speed
M18
```

Designation K KF MS SVS max. XK XL : 5,1...5,4 : 1,3..1,55 : 3,6 : 20,2...22,2 : 9,3...12,7 mm mm mm mm mm mm

Note inst. in remarks column

Test sheet : CAS 3,9 G Edition replaces : 09.07.87

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283 Type number : 0 460 404 052 Customer Part-No. : 1329 137 C1

Customer-specific information

Customer : CASE

: D 206/584/585 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening |

pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840 x Length

Start of delivery

Prestroke mm: 0,2

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 800 Speed Setting value mm: 4,2...4,6

Supply-pump pressure:

```
Setting value bar: 5,3...5,9
                                                                           : 55...138
                                                       Overflow
                                                        quantity cm3/10s: (40...153)
Full-load del. w/out charge press.:
                                                       Delivery-quant. and breakaway char.:
             1/min : 800
                                                                     1/min: 1350
                                                       1st speed
Speed
                                                       Del.quantity cm3/: 0,0...3,0
Del.quantity cm3/
             1000H.: 66,8...67,8
                                                                    1000H.: -
             cm3/: 3.0
1000H.: (3,5)
                                                                      1/min: 1290
Dispersion
                                                       2nd speed
                                                       Del.quantity cm3/: 0,0...10,0
1000H.: -
Low-idle speed regulation:
                                                       3rd speed
                                                                     1/min: 1240
                                                       Del.quantity cm3/: 0,0...10,0 1000H.: -
               1/min: 350
Speed
Del.quantity cm3/
                                                                     1/min: 1230
                                                       4th speed
                                                       Del.quantity cm3/: -
1000H.: (35,5...44,5)
             1000H.: 18,0...22,0
             cm3/: 3,0
1000H.: (3,5)
Dispersion
                                                                      1/min: 1150
                                                       5th speed
                                                       Del.quantity cm3/: 61,6...64,6
1000H.: (60,4...65,8)
Full-load speed regulation:
                                                                     1/min: 800
               1/min: 1230
                                                       6th speed
Speed
                                                       Del.quantity cm3/: -
1000H.: (64,6...70,0)
Del.quantity
               cm3/
               1000H: 37,0...43,0
                                                       7th speed 1/min: 500
Del.quantity cm3/: 56,7...60,7
1000H.: (55,3...62,1)
Start:
               1/min: 100
Speed
Del.quantity
                                                       Zero delivery (stop):
         cm3/1000H.: 80,0
mind
                                                       Mech. shutoff:
Inspection-pump test specifications
                                                                     1/min: 1150
                                                       Speed
                                                       Del.quantity cm3/: - 1000H.: -
Test specifications in parentheses
Timing-device characteristic:
                                                       Idle delivery:
1st speed
               1/min: 500
                                                       Mfg. date: until : -
TD travel
                  mm: 1,7...2,5
                                                       1st speed
                                                                     1/min: 350
                                                       Del.quantity cm3/: -
1000H.: (15,5..24,5)
                  mm: (1,4...2,8)
               1/min: 800
2nd speed
                                                                     1/min: 500
TD travel
                  mm:
                                                       2nd speed
              mm: (3,7...5,1)
1/min: 1150
                                                       Del.quantity cm3/: 0,0...4,0
1000H.: -
3rd speed
                  mm: 6,6...7,4
mm: (6,3...7,7)
ID travel
                                                       Automatic starting fuel delivery:
                                                                     1/min: 350
Supply-pump pressure characteristic:
                                                       1st speed
                                                       Del.quantity cm3/: -
                                                                     1000H: 80,0
1st speed
               1/min: 500
                                                        ind.
Supply-pump
                bar: 4,1...4,7
                                                       2nd speed
                                                                     1/min: 450
pressure
               1/min: 1150
                                                       Del.quantity cm3/: -
2nd speed
                                                                     1000H: 80,0
Supply-pump
                bar: 6,5...7,1
 pressure
                                                       Shutoff electromagnet:
Overflow quantity at overflow valve:
                                                       Cut-in
              1/min: 500
                                                        min. voltage
1st speed
Oveflow
                   : 41...83
                                                       Rated voltage
            cm3/10s: (26...98)
 quantity
              1/min: 1150
2nd speed
                                                       Mounting and assembly dimensions:
M21
```

Designation K KF MS SVS max. XK XL mm : mm : 5,1...5,4
mm : 1,3..1,55
mm : 3,6
mm : 20,2...22,2
mm : 9,3...12,7

Note inst. in remarks column

Test sheet : VWW 2,0 I3 Edition replaces : 07.07.87 : 09.85 Calibrating oil : ISO 4113

Injection pump : VE 5/10F2400 L137 Type number : 0 460 405 030 Type number

Customer-specific information

Customer

: 153 (SG) Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm : 0,14

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1400 Speed Setting value mm: 2,4...2,8

Supply-pump pressure:

1/min: 1400 Setting value bar: 5,0...5,6

Full-load del. w/out charge press.:

Speed 1/min : 1400

Del.quantity cm3/	Del.quantity cm3/: -
1000H.: 32,533,5 Dispersion cm3/: 2,5	1 1000H.: (5,013,0) 1 3rd speed 1/min: 2550
1000H.: (3,0)	Del.quantity cm3/: 14,524,5 1 1000H.: (13,525,5)
Low-idle speed regulation:	1 4th speed 1/min: 2400 1 Del.quantity cm3/: 28,030,0
Speed 1/min: 375	1 1000H.: (26.831,2) 1 5th speed 1/min: 1400
Del.quantity cm3/ 1000H.: 6,010,0	Del.quantity cm3/: -
Dispersion cm3/: 2,0	1 1000H.: (30,835,2)
1000H.: (3,0)	l 6th speed 1/min: 750
Full-load speed regulation:	Del.quantity cm3/: 23,326,3 1 1000H.: (21,827,8)
Speed 1/min: 2650	<b>!</b>
Del.quantity cm3/	Zero delivery (stop):
1000H: 7,011,0	I I Electr. shutoff:
Start:	Speed 1/min: 375
	I ELAB volt: -
Speed 1/min: 100	<pre>Del.quantity cm3/: 0,03,0</pre>
Del.quantity : -	1000H.: -
mind cm3/1000H.: 50,0	l I Idla deliveru:
Inspection-pump test specifications	I Idle delivery:
Test specifications in parentheses	' I Mfg. date: until : -
	l 1st speed 1/min: 375
	Del.quantity cm3/: - 1000H.: (4,012,0)
Timing-device characteristic:	1000H.: (4,012,0)
1st sound 1/min; 1000	l 2nd speed 1/min: 450
1st speed	! Del.quantity cm3/: 0,03,0 ! 1000H.: -
mm: (0,92,5)	1000112.
2nd speed 1/min: 1400	Automatic starting fuel delivery:
TD travel mm: -	ĺ
mm: (1,83,4)	l 1st speed 1/min: 400
3rd speed 1/min: 2400 TD travel mm: 5,15,9	Del.quantity cm3/: -   ind. 1000H: 15,5
mm: (4,76,3)	
	2nd speed 1/m <u>i</u> n: 500
Supply-pump pressure characteristic:	<pre>Del.quantity cm3/: -</pre>
104 0000d 1/min 750	ax. 1000H: 23,5
1st speed 1/min: 750	   Shutoff electromagnet:
Supply-pump pressure bar: 3,44,0	Shacori evec a omagnec.
2nd speed 1/min: 2400	Cut-in
Supply-pump	min. voltage : 10,0
pressure bar: 7,3,7,9	Rated voltage : 12,0
Overflow quantity at overflow valve:	Mounting and assembly dimensions:
1st speed 1/min: 750	Designation
2nd speed 1/min: 2400	K mm:-
	KF mm : 5,76,0
Delivery-quant. and breakaway char.:	MS mm : 1,71,9
1st speed 1/min: 2750 Del.quantity cm3/: 0,06,0	SVS max. mm : 2,8
1000H.: -	Remarks:
2nd speed 1/min: 2650	
<b>1</b>	

Del.quantity cm3/ 1000H.: 32,5...33,5 cm3/: 2,5 BOSCH-INJ.-PUMP TEST SPECIFICATIONS Dispersion Note inst. in remarks column 1000H.: (3,0) Test sheet : VWW 2,0 I2 Low-idle speed regulation: : 07.07.87 Edition replaces : 09.85 Speed 1/min: 375 Speed
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0 Calibrating oil : I30 4113 : VE 5/10F2400 L137-1 Injection pump Type number : 0 460 405 032 1000H.: (3,0) Full-load speed regulation: Customer-specific information Customer 1/min: 2650 : VW Speed Del.quantity cm3/ Engine : 153 (SG) 1000H: 7,0...11,0 TEST BENCH REQUIREMENTS .art: Calibrating-oil return temp. °C Speed 1/min: 100 Del.quantity with thermometer : 40...48 cm3/1000H.: 50.0 electronically : 42...50 Inspection-pump test specifications Inlet press., bar : 0,35 Test specifications in parentheses Calibrating nozzle-holder : 1 688 901 000 assembly Timing-device characteristic: Opening 1/min: 1000 1st speed pressure bar : 147...150 TD travel mm: 1,3...2,1 mm: (0,9...2,5)1/min: 1400 2nd speed Test inj. tubing : 1 680 750 017 TD travel mm: mm: (1,8...3,4) 1/min: 2400 Outside diameter : 6 3rd speed x Wall thickness : 2 TD travel mm: 5,1...5,9 mm : 840 mm: (4,7...6,3)x Length Start of delivery Supply-pump pressure characteristic: e mm : 0,14 (from BDC): +-0,02(0,04) Prestroke 1/min: 750 1st speed Supply-pump Injection-pump setting values pressure bar: 3,4...4,0 1/min: 2400 2nd speed Test specifications in parentheses Supply-pump Timing-device travel: pressure bar: 7,3...7,9 1/min: 1400 Overflow quantity at overflow valve: Speed Setting value mm: 2,4...2,8 1/min: 750 1st speed 1/min: 2400 Supply-pump pressure: 2nd speed 1/min: 1400 Delivery-quant. and breakaway char.: Speed 1/min: 2750 Setting value bar: 5,0...5,6 1st speed Del.quantity cm3/: 0,0...6,0 1000H.: -Full-load del. w/out charge press.: 1/min: 2650 2nd speed Speed 1/min : 1400 M26

```
Del.quantity cm3/: -
1000H.: (5,0...13,0)
3rd speed 1/min: 2550
Del.quantity cm3/: 14,5...24,5
1000H.: (13,5...25,5)
4th speed
                1/min: 2400
                 cm3/: 28,0...30,0
Del.quantity
               1000H.: (26,8...31,2)
                1/min: 1400
5th speed
Del.quantity cm3/: -
1000H.: (30,8...35,2)
6th speed 1/min: 750
Del.quantity cm3/: 23,3...26,3
1000H.: (21,8...27,8)
Zero delivery (stop):
Electr. shutoff:
                1/min: 375
Speed
ELAB
                 volt: -
Del.quantity cm3/: 0,0...3,0 max. 1000H.: -
Idle delivery:
Mfg. date: until
                1/min: 375
1st speed
                 cm3/: -
Deliquantity
               1000H.: (4,0...12,0)
                1/min: 450
2nd speed
Del.quantity cm3/: 0,0...3,0
1000H.: -
Automatic starting fuel delivery:
                1/min: 400
1st speed
                 cm3/:
Del.quantity
                1000H: 15,5
 ind.
2nd speed
                1/min: 500
Del.quantity cm3/: -
                1000H: 23,5
Shutoff electromagnet:
Cut-in
                       : 10,0
 min. voltage
                       : 12,0
Rated voltage
Mounting and assembly dimensions:
Designation
                 mm
                      : 5,7...6,0
KF
                 mm
MS
                 mm
                      : 1,7...1,9
                     : 2.8
SVS max.
                 mm
Remarks:
```

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Low-idle speed regulation: Note inst. in remarks column Speed 1/min: 375 Del.quantity cm3/ 1000H.: 6,0...10,0 : VWW 2,3 B1 Test sheet : 20.07.87 cm3/: 2.0 1000H.: (3,0) Edition Dispersion : 04.86 replaces Calibrating oil : ISO 4113 Full-load speed regulation: : VE 6/10F2400 L32 1/min: 2700 Injection pump Speed Type number : 0 460 406 003 Del.quantity cm3/ 1000H: 7,0...11,0 Customer-specific information Customer Start: : 087 Engine Speed 1/min: 100 Del.quantity mind cm3/1000H.: 35,0 TEST BENCH REQUIREMENTS Calibrating-oil C Inspection-pump test specifications return temp. Test specifications in parentheses with thermometer : 40...48 electronically : 42...50 Timing-device characteristic: Inlet press., bar : 0,35 1st speed 1/min: 800 Calibrating nozzle-holder TD travel mm: 5,7...6,5 : 1 688 901 000 mm: (5,4...6,8)assembly 1/min: 1000 2nd speed mm: 0,8...1,6 mm: (0,5...1,9) 1/min: 1500 TD travel Opening pressure bar : 147...150 3rd speed TD travel mm: -Test inj. tubing : 1 680 750 017 mm: (2,3...3,7)4th speed 1/min: 2400 : 6 TD travel mm: 5,7...6,5 Outside diameter x Wall thickness mm: (5,4,...6,8)mia 340 x Length Supply-pump pressure characteristic: Injection-pump setting values Test specifications in parentheses 1/min: 750 1st speed Supply-pump bar: 3,2...3,8 Timing-device travel: pressure 1/min: 2400 2nd speed 1/min: 1500 Supply-pump Speed Setting value mm: 2,8...3,2 bar: 7,5...8,1 pressure Supply-pump pressure: Overflow quantity at overflow valve: 1/min: 750 1/min: 1500 1st speed Speed : 41...83 Oveflow Setting value bar: 5,2...5,8 cm3/10s: (26...98) quantity 1/min: 2400 Full-load del, w/out charge press.: 2nd speed Over flow : 55...138 quantity cm3/10s: (40...153) 1/min : 1500 Speed Del.quantity cm3/ 1000H.: 28,5...29,5 cm3/: 2,5 Delivery-quant. and breakaway char.: 1st speed 1/min: 2800 Dispersion 1000H.: (3,0)

```
Del.quantity cm3/: 0,0...6,0
1000H.: -
               1/min: 2700
2nd speed
Del.quantity cm3/: -
1000H.: (5,0...13,0)
                1/min: 2625
3rd speed
Del.quantity cm3/: 14,5...24,5
1000H.: (13,5...25,5)
4th speed
               1/min: 2400
Del.quantity cm3/: 23.0...25.0
1000H.: (21.8...26.2)
                1/min: 1500
5th speed
Del.quantity cm3/: -
1000H.: (26,8...31,2)
6th speed 1/min: 750
Del.quantity cm3/: 26,0...29,0
1000H.: (24,5...30,5)
Zero delivery (stop):
Electr. shutoff:
Speed
               1/min: 375
ELAB
                volt: -
Del.quantity cm3/: 0,0...3,0 max. 1000H.: -
max.
Idle delivery:
Mfg. date: until : -
              1/min: 375
1st speed
Del.quantity cm3/: -
1000H.: (4,0...12,0)
               1/min: 600
2nd speed
Del.quantity cm3/: 0,0...4,0
1000H.: -
Automatic starting fuel delivery:
               1/min: 400
1st speed
Del.quantity cm3/: -
               1000H: 20,0
 ind.
               1/min: 500
2nd speed
               cm3/: -
Del.quantity
                1000H: 25,0
 ax.
Shutoff electromagnet:
Cut-in
min. voltage
                     : 10,0
Rated voltage
                     : 12,0
Mounting and assembly dimensions:
Designation
K
                     : 3,2...3,4
                 mm
                     : 6,3...6,6
KF
                 mm
                    55، 1 ، 5 ، . 1 :
MS
SVS max.
                     : 4,1
                mm
                     : 18,5...20,5
XK
                mm
```

NO1

mm : 9,2...12,9

XL

Note inst. in remarks column

Test sheet : VWW 2,3 B Edition : 20.07.87 replaces : 04.86 Calibrating oil : ISO 4113

Injection pump
Type number : VE 6/10F2400 L32-1

: 0 460 406 009 Type number

Customer-specific information

Customer

: 087 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil oc return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Setting value mm: 2,8...3,2

Supply-pump pressure:

1/min: 1500 Speed Setting value bar: 5,2...5,8

Full-load del. W/out charge press.:

1/min : 1500 Speed

Del.quantity cm3/

1000H.: 28,5...29,5 cm3/: 2,5 1000H.: (3,0) Dispersion

Low-idle speed regulation:	Del.quantity cm3/: 0,06,0 1000H.: -
lan rate special significant	2nd speed 1/min: 2700
Speed 1/min: 375	Del.quantity cm3/: -
Del.quantity cm3/	1000H.: (5,013,0)
1000H.: 6,010,0	3rd speed 1/min: 2625
Dispersion cm3/: 2.0   1   1000H.: (3.0)	Del.quantity cm3/: 14,524,5
1000H.: (3,0)	Del.quantity cm3/: 14,524,5 1000H.: (13,525,5)
Full-load speed regulation:	4th speed 1/min: 2400
1	Del.quantity cm3/: 23,025,0
Speed 1/min: 2700 1	1000H.: (21,826,2)
Deliquantity cm3/	5th speed 1/min: 1500
1000H: 7,011,0	Del.quantity cm3/: -
1	1000H.: (26,831)
Start:	6th speed 1/min: 750
	Del.quantity cm3/: 26,029,0
Speed 1/min: 100	1000H.: (24,530,5)
Del.quantity : -	
mind cm3/1000H.: 35,0	Zero delivery (stop):
	Mark shaket.
Inspection-pump test specifications	Mech. shutoff:
Test specifications in parentheses	Speed 1/min: 2400
<u> </u>	Del.quantity cm3/: 03
Timinan davias abanacionistics	1000H.: -
Timing-device characteristic:	Electr. shutoff:
1st speed 1/min: 900	
1st speed 1/min: 800	
TD travel mm: 5,76,5	ELAB volt: - Del.quantity cm3/: 0,03,0
mm: (5,46,8) 2nd speed 1/min: 1000	max. 1000H.: -
2nd speed	max. 1000II.
mm: (0,51,9)	Idle delivery:
3rd speed 1/min: 1500	Tute ustivery.
TD travel mm: -	Mfg. date: until : -
mm: (2,33,7)	1st speed 1/min: 375
4th speed 1/min: 2400	Del.quantity cm3/: -
TD travel mm: 5,76,5	1000H.: (4,012,0)
mm: (5,46,8)	2nd speed 1/min: 600
	Del.quantity cm3/: 0,04,0
Supply-pump pressure characteristic:	1000H.: -
The state of the s	
1st speed 1/min: 750	Automatic starting fuel delivery:
Supply-pump I	,
pressure bar: 3,23,8	1st speed 1/min: 400
2nd speed 1/min: 2400	<pre>Del.quantity cm3/: -</pre>
Supply-pump !	ind. 1000H: 20,0
pressure bar: 7,58,1	
	2nd speed 1/min: 500
Overflow quantity at overflow valve:	Del.quantity cm3/: -
	ax. 1000H: 25,0
1st speed	
Oveflow : 4183	Shutoff electromagnet:
quantity cm3/10s: (2698)	On the standard
2nd speed 1/min: 2400	Cut-in
0ver flow : 55138	min. voltage : 10.0
quantity cm3/10s: (40153)	Rated voltage : 12,0
Baltwan mak and breakers at an	Managina and annoughly discounters.
Delivery-quant, and breakaway char.:	Mounting and assembly dimensions:
1st speed 1/min: 2800	Dacionation
<b>'</b>	Designation
NO3	
nos	

K mm : 3,2...3,4
KF mm : 6,3...6,6
MS mm : 1,5..1,75
SVS max. mm : 3,6
XK mm : 18,5...20,5
XL mm : 9,2...12,9

Note inst. in remarks column

Test sheet : VWW 2,4 K
Edition : 20.07.87
replaces : 04.86
Calibrating oil : ISO 4113

Injection pump : VE 6/10F2400 L32-2 Type number : 0 460 406 037

Customer-specific information

Customer : VW

Engine : 087

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1500 Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

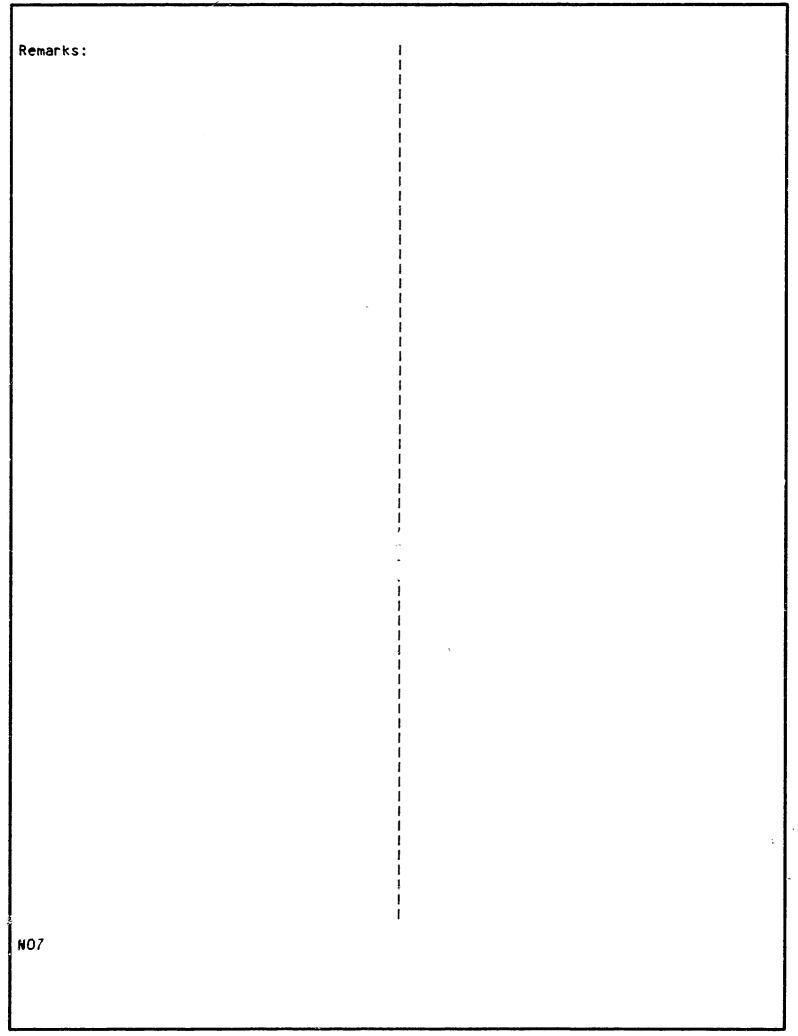
Speed 1/min : 1500

Del.quantity cm3/

1000H.: 28,5...29,5

Dispersion cm3/: 2.5 1000H.: (3.0)

	Del.quantity cm3/: 0,06,0 1000H.: -
Low-idle speed regulation:	2nd speed 1/min: 2700
Speed 1/min: 375	Del.quantity cm3/: -
Del.quantity cm3/ 1000H.: 6,010,0	1000H.: (5,013,0) 3rd speed  1/min: 2625
Dispersion cm3/: 2,0	Del.quantity cm3/: 14.524.5 1000H.: (13.525.5)
1000H.: (3,0)  Full-load speed regulation:	1000H.: (13,525,5) 4th speed  1/min: 2400
l det toda speed regulation.	Del.quantity cm3/: 23.025.0
Speed 1/min: 2700 l Del.quantity cm3/ l	1000H.: (21,826,2) 5th speed 1/min: 1500
1000H: 7,011,0	Del.quantity cm3/: -
Start:	1000H.: (26,831,2)
	6th speed 1/min: 750 Del.quantity cm3/: 26,029,0
Speed 1/min: 100	1000H.: (24,530,5)
Del.quantity : - !   mind cm3/1000H.: 35,0	Zero delivery (stop):
1	•
Inspection-pump test specifications	Electr. shutoff: Speed 1/min: 375
!	ELAB volt: -
	Del.quantity cm3/: 0,03,0 max. 1000H.: -
1	
1st speed	Idle delivery:
mm: (5,46,8)	Mfg. date: until : -
2nd speed	1st speed 1/min: 375
ا (9رأ5رأ)mm	Del.quantity cm3/: - 1000H.: (4,012,0)
3rd speed 1/min: 1500 l	2nd speed 1/min: 600
TD travel mm: -	Del.quantity cm3/: 0,04,0 1000H.: -
4th speed 1/min: 2400	Automatic eteration fuel deliverus
TD travel	Automatic starting fuel delivery:
' '	1st speed 1/min: 400
Supply-pump pressure characteristic:	Del.quantity cm3/: - ind. 1000H: 20,0
1st speed 1/min: 750	
Supply-pump	2nd speed 1/min: 500 Del.quantity cm3/: -
2nd speed 1/min: 2400	ax. 1000H: 25,0
Supply-pump 1 pressure bar: 7,58,1	Shutoff electromagnet:
`	•
Overflow quantity at overflow valve:	Cut-in min. voltage : 10,0
1st speed 1/min: 750	Rated voltage : 12,0
Oveflow	Mounting and assembly dimensions:
2nd speed 1/min: 2400	•
Overflow	Designation K mm : 3,23,4
quarterty cm3/108% (40%, 133/	KF mm : 6,36,6
Delivery-quant, and breakaway char.:	MS mm : 1,51,75
1st speed	SVS max. mm : 3,6



Note inst. in remarks column

: VWW 2,4 K2 Test sheet Edition replaces : 20.07.87 : 04.86 Calibrating oil : ISO 4113

Injection pump : VE 6/10F2400 L32-3 Type number : 0 460 406 038

: 0 460 406 038 Type number

Customer-specific information

Customer

: 087 Engine

TEST BENCH REQUIREMENTS

Calibrating-cil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Setting value mm: 2,8...3,2

Supply-pump pressure:

1/min: 1500 Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

1/min : 1500 Speed

Del.quantity cm3/ 1000H.: 28,5...29,5 Dispersion cm3/: 2,5

1000H.: (3,0)

Low-idle speed regulation:	Del.quantity cm3/: 0,06,0 1000H.: -
	2nd speed 1/min: 2700
Speed	Del.quantity cm3/: - 1000H.: (5,013,0)
1000H.: 6,010,0	3rd speed 1/min: 2625
Dispersion cm3/: 2,0   1   1000H.: (3,0)	Del.quantity cm3/: 14,524,5 1000H.: (13,525,5)
Full-load speed regulation:	4th speed 1/min: 2400
Speed 1/min: 2700	Del.quantity cm3/: 23,025,0 1000H.: (21,826,2)
Del.quantity cm3/	5th speed 1/min: 1500
1000H: 7,011,0	Del.quantity cm3/: - 1000H.: (26,831,2)
Start:	6th speed 1/min: 750
Speed 1/min: 100	Del.quantity cm3/: 26,029,0 1000H.: (24,530,5)
Speed 1/min: 100	1000n.: \24,35U
mind cm3/1000H.: 35,0	Zero delivery (stop):
Inspection-pump test specifications	Mech. shutoff:
Test specifications in parentheses	Speed 1/min: 2400 Del.quantity cm3/: 03
	1000H.: -
Timing-device characteristic:	Electr. shutoff:
1st speed 1/min: 800	Speed 1/min: 375
TD travel mm: 5,76,5	ELAB volt: -
mm: (5,46,8)   2nd speed 1/min: 1000	Del.quantity cm3/: 0,03,0 max. 1000H.: -
TD travel mm: 0,81,6	
mm: (0,51,9)	Idle delivery:
3rd speed 1/min: 1500   I TD travel mm: -	Mfg. date: until : -
mm: (2,33,7)	1st speed 1/min: 375
4th speed	Del.quantity cm3/: - 1000H.: (4,012,0)
mm: (5,46,8)	2nd speed 1/min: 600
Supply-numb pressure characteristic:	Del.quantity cm3/: 0,04,0 1000H.: -
Supply-pump pressure characteristic:	
1st speed 1/min: 750	Automatic starting fuel delivery:
Supply-pump   pressure bar: 3,23,8	1st speed 1/min: 400
2nd speed 1/min: 2400	Del.quantity cm3/: -
Supply-pump	ind. 1000H: 20,0
	2nd speed 1/min: 500
Overflow quantity at overflow valve:	Del.quantity cm3/: - ax. 1000H: 25,0
1st speed 1/min: 750	·
Oveflow : 4183	Shutoff electromagnet:
quantity cm3/10s: (2698) 2nd speed	Cut-in
Overflow	min. voltage : 10,0
quantity cm3/10s: (40153)	Rated voltage : 12,0
Delivery-quant, and breakaway char.:	Mounting and assembly dimensions:
1st speed 1/min: 2800	Designation
	<b>č</b>

KF mm : 3,2...3,4 KF mm : 6,3...6,6 MS mm : 1,5..1,75 SVS max. mm : 3,6

Note inst. in remarks column

Test sheet : ONA

Edition : 17.07.87 replaces : 16.12.86

Calibrating oil : ISO 4113

Injection pump : VE 6/10F1400 R209-1 Type number : 0 460 406 052

Customer-specific information

Customer-specific information Customer : ONAN

Engine : L 634T

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder assembly : 1 688 901 000

Opening

pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 800

Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1100 Charge press. hPa: 800 Setting value bar: 3,8...4,4

Full-load del. with charge press.:

Charge press. hPa: 800 1/min: 1100 Supply-pump Speed Charge press. hPa: 800 Del.quantity cm3/ bar: 1,2...1,8 1/min: 1400 pressure 2nd speed 1000H.: 61,0...62,0 Charge press. hPa: 800 Dispersion cm3/:3.0Supply-pump 1000H : bar: 4,8...5,4 pressure Full-load del. w/out charge press.: Overflow quantity at overflow valve: 1/min : 700 1/min: 700 Speed 1st speed Charge press. hPa: 800 Deliquantity cm3/ 1000H.: 44,5...45,5 Oveflow : 41...83 quantity cm3/10s: (26...98) nd speed 1/min: 1400 Low-idle speed regulation: 2nd speed Charge press. hPa: 800 Over flow : 55...138 Speed 1/min: 350 quantity cm3/10s: (40...153) Charge press. hPa: -Del.quantity cm3/ 1000H.: 23,0...27,0 Delivery-quant. and breakaway char.: cm3/: 3,01st speed 1/min: 700 Dispersion 1000H.: Charge-air pressure-setting point hPa: 200
Del.quantity cm3/: 47.0...48.0
1000H.: (45.2...49.8) Full-load speed regulation: 1/min: 1480 Speed 1/min: 1600 Charge press. hPa: 800 2nd speed Charge press. hPa: 800 Deliquantity cm3/ 1000H: 39,0...45,0 Del.quantity cm3/: 0,0...3,6 1000H.: -3rd speed 1/min: 1560 Charge press. hPa: 800 Start: Del.quantity cm3/: 6,0...14,0 1000H.: (5,5...14,5) 1/min: 100 Speed Del.quantity cm3/1000H.: 42,0 1/min: 1480 mind 4th speed Charge press. hPa: 800
Del.quantity cm3/: 1000H.: (37,5...46,5)
Sth speed 1/min: 1400 Load-dependent start of delivery: 1/min: 1100 Speed Charge press. hPa: 800 Del.quantity cm3/: 57.0...60.0 1000H.: (56.2...60.8) Inspection-pump test specifications Test specifications in parentheses 1/min: 1100 6th speed Charge press. hPa: 800
Del.quantity cm3/: 1000H.: (59,2...63,8) Timing-device characteristic: 1/min: 1100 1/min: 800 7th speed 1st speed Charge press. hPa: 800 Charge press. hPa: 800 Del.quantity cm3/: ~ 1000H.: (59,2...63,8) TD travel mm: 1,4...2,2 mm: (1,1...2,5)1/min: 700 2nd speed 1/min: 1100 8th speed TD travel Charge press. hPa: 800 mm: Del.quantity cm3/: 58.0...61.0 1000H: (57.2...61.8) mm: (2,3...3,7)1/min: 1400 3rd speed 1/min: 700 Charge press. hPa: 800 9th speed Charge press. hPa: Del.quantity cm3/: mm: 4,2...4,8 mm: (3,8...5,2) TD travel 1000H: (42,7...47,3) Supply-pump pressure characteristic: Zero delivery (stop): 1st speed 1/min: 400

```
Mech. shutoff:
               1/min: 1400
Speed
Del.quantity cm3/: 0..3
              1000H.: -
Electr. shutoff:
               1/min: 350
Speed
ELAB
               volt: -
Del.quantity cm3/: 0,0...3,0 max. 1000H.: -
Idle delivery:
Mfg. date: until : -
              1/min: 350
1st speed
Del.quantity cm3/: -
1000H.: (21,0..29,0)
2nd speed 1/min: 400
Del.quantity cm3/: 9,5...16,5
1000H.: (8,5...17,5)
3rd speed 1/min: 450
3rd speed
Del.quantity cm3/: 0,0...3,6
             1000H.: -
Automatic starting fuel delivery:
1st speed
              1/min: 230
Del.quantity cm3/: -
               1000H: 42,0
 ind.
2nd speed
              1/min: 300
Del.quantity cm3/: -
               1000H: 42,0
Shutoff electromagnet:
Cut-in
                     : 10,0
 min, voltage
Rated voltage
                    : 12,0
Mounting and assembly dimensions:
Designation
KF
                   : 5,7...6,0
                    : 0,7..0,95
MS
                mm
                   : 1,6
SVS max.
                mm
Remarks:
Correction at adjusting nut (46)
```

Del.quantity cm3/ 1000H.: 72,5...73,5 Dispersion cm3/: 3,0 BOSCH-INJ.-PUMP TEST SPECIFICATIONS 1000H.: (3.5) Note inst. in remarks column : CAS 5,9 A Test sheet Low-idle speed regulation: : 17.07.87 Edition replaces Speed 1/min: 350 Del.quantity cm3/ 1000H.: 18,0...22,0 : ISO 4113 Calibrating oil cm3/: 3,0 1000H.: (3,5) Injection pump : VE 6/10F1150 R287 Dispersion Type number : 0 460 406 056 Full-load speed regulation: Customer-specific information 1/min: 1200 Customer : CASE Speed Del.quantity cm3/ 1000H: 49,0...55,0 Engine : 0 358-1056 TEST BENCH REQUIREMENTS Start: Calibrating oil oc 1/min: 100 Speed return temp. Del.quantity mind cm3/1000H.: 70,0 with thermometer : 40...48 electronically : 42...50 Inspection-pump test specifications Inlet press., bar : 0,35 Test specifications in parentheses Calibrating nozzle-holder : 1 688 901 020 Timing-device characteristic: assembly 1/min: 500 Opening 1st speed mm: 2,4...3,2 mm: (2,1...3,5) 1/min: 800 bar: 172...175 TD travel pressure Perforated-plate 2nd speed TD travel diameter mm : 0.6 mm: mm: (4,9...6,3)1/min: 1000 3rd speed mm: 6,7...7,5 mm: (6,4...7,8) Test inj. tubing : 1 680 750 017 TD travel Outside diameter : 6 x Wall thickness : 2 Supply-pump pressure characteristic: x Length mm : 840 1st speed 1/min: 500 Injection-pump setting values Test specifications in parentheses Supply-pump bar: 4,0...4,6 pressure 1/min: 1000 2nd speed Timing-device travel: Supply-pump pressure bar: 6,1...6,7 1/min: 800 Speed Setting value mm: 5,4...5,8 Overflow quantity at overflow valve: 1/min: 500 1st speed Supply-pump pressure: Oveflow : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 1100 1/min: 800 Speed Setting value bar: 5,3...5,9 Over flow : 55...138 cm3/10s: (40...153) Full-load del. w/out charge press.: quantity Delivery-quant, and breakaway char.: Speed 1/min : 800 1st speed 1/min: 1350 N14

```
Del.quantity cm3/: 0,0...3,0
             1000H.:
               1/min: 1300
2nd speed
Del.quantity cm3/: 0,0...10,0
             1000H.: -
               1/min: 1250
3rd speed
Del.quantity
               cm3/: 10,0...50,0
             1000H.:
4th speed
               1/min: 1200
              cm3/:
Del.quantity
             1000H.: (47,5...56,5)
5th speed 1/min: 1100
Del.quantity cm3/: 76.5...79.5
1000H.: (75.5...80.5)
6th speed
               1/min: 800
Del.quantity
               cm3/:
             1000H.: (70,7...75,3)
              1/min: 500
7th speed
Del.quantity cm3/: 71,0...75,0
1000H.: (70,0...76,0)
Zero delivery (stop):
Mech. shutoff:
              1/min: 1100
Speed
Del.quantity cm3/: 0..3
             1000H.: -
Idle delivery:
Mfg. date: until
              1/min: 350
1st speed
Del.quantity cm3/: -
             1000H.: (16,0..24,0)
              1/min: 450
2nd speed
Del.quantity cm3/: 0,0...4,9
1000H.: -
Automatic starting fuel delivery:
               1/min: 350
1st speed
               cm3/: -
Del.quantity
               1000H: 80,0
 ind.
              1/min: 450
2nd speed
Del.quantity
               cm3/: -
               1000H: 80,0
 ax.
Shutoff electromagnet:
Cut-in
 min. voltage
Rated voltage
Mounting and assembly dimensions:
Designation
                   : 3,2...3,4
: 5,7...6,0
               mm
KF
               mm
MS
                   65,1,4,1:
               mm
N15
```

SVS max. mm : 1,6
Remarks:

Note inst. in remarks column

Test sheet : SOF 2.5K Edition : 30.06.87 replaces : 08.84 Calibrating oil : ISO 4113

Injection pump : VE 4/11F1900 R127 Type number : 0 460 414 008

Customer-specific information : IVECO-SOFIM Customer

: 8140.21 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 023

Opening -

pressure bar : 172...175

Perforated-plate

diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 x Length mm : 450

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 1000 Setting value mm: 4,2...4,6

Supply-pump pressure:

1/min: 1100 Charge press. hPa: 1000

```
hPa: 1000
mm: 7,6...8,4
mm: (7,3...8,7)
Setting value bar: 5,3...5,9
                                                                Charge press.
                                                                TD travel
Full-load del. with charge press.:
                 1/min: 1100
Speed
                                                                Supply-pump pressure characteristic:
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 42,5...43,5
Dispersion cm3/: 3,5
                                                                1st speed
                                                                                  1/min: 600
                                                                Charge press. hPa: 1000
                                                                Supply-pump
                                                                                 bar: 3,8...4,4
1/min: 1900
hPa: 1000
                1000H : (4,0)
                                                                  pressure
                                                                2nd speed
Full-load del. w/out charge press.:
                                                                Charge press.
                                                                Supply-pump
Speed
                1/min : 500
                                                                                    bar: 7,5...8,1
                                                                  pressure
Deliquantity cm3/
                1000H.: 39,5...40,5
                                                                Overflow quantity at overflow valve:
Low-idle speed regulation:
                                                                                 1/min: 600
                                                                1st speed
                                                                Charge press. hPa:
Speed
                 1/min: 400
                                                                Oveflow
                                                                                        : 55...138
De: quantity cm3/
1000H: 13.0...17.0
Dispersion cm3/: 3.0
1000H: (4.0)
                                                                quantity cm3/10s: (40...153)
2nd speed 1/min: 1900
                                                                Charge press. hPa:
                                                                Overflow
                                                                                        : 55...138
                                                                  quantity cm3/10s: (40...153)
Full-load speed regulation:
                 1/min: 2300
Speed
                                                                Delivery-quant. and breakaway char.:
Charge press. hPa: 1000
                                                                1st speed
                                                                                1/min: 900
                 cm3/
                                                                Charge-air pressure-setting
Deliquantity
                                                                                    hPa: 400
                 1000H: 18,0...24,0
                                                                  point
                                                                LDA stroke mm: 3,5
Del.quantity cm3/: 37,0...38,0
1000H.: (34,7...40,2)
Start:
                 1/min: 100
                                                                                 1/min: 2450
Speed
                                                                2nd speed
                                                                Charge press. hPa: 1000
Del.quantity cm3/: 0,0...10,0
1000H.: -
Del.quantity
         cm3/1000H.: 60,0
mind
Load-dependent start of delivery:
                                                                3rd speed
                                                                                 1/min: 2300
                                                                Charge press. hPa: 1000
Del.quantity cm3/: -
1000H.: (16,5...25,5)
4th speed 1/min: 2100
                 1/min: 1100
Speed
Inspection-pump test specifications
                                                                Charge press. hPa: 1000
Test specifications in parentheses
                                                                Del.quantity cm3/: 30.0...38.0
1000H.: (29.5...38.5)
5th speed 1/min: 1900
Timing-device characteristic:
                                                                Charge press. hPa: 1000
Del.quantity cm3/: 37,75...40,25
1000H.: (36,3...41,7)
6th speed 1/min: 1500
                 1/min: 800
1st speed
Charge press. hPa: 1000
TD travel mm: 2,4...3<sub>2</sub>2
                                                                Charge press. hPa: 1000
Del.quantity cm3/: 39,75...42,25
1000H.: (38,3...43,7)
                     mm: (2,1...3,5)
                 1/min: 1100
2nd speed
Charge press. hPa: 1000
                                                                                 1/min: 1100
TD travel
                     mm:
                                                                7th speed
mm: (3,7...5,1)
3rd speed 1/min: 1500
Charge press. hPa: 1000
                                                                Charge press. hPa: 1000
Del.quantity cm3/: -
1000H.: (40,3...45,7)
                    mm: 5,8...6,6
mm: (5,5...6,9)
TD travel
                                                                8th speed
                                                                                 1/min: 500
                                                                Charge press. hPa: -
              1/min: 1900
4th speed
```

```
Deliquantity cm3/: -
              1000H: (37,3...42,7)
Zero delivery (stop):
Mech. shutoff:
              1/min: 1900
Speed
Del.quantity cm3/: - 1000H.: -
Idle delivery:
Mfg. date: until : -
             1/min: 350
1000H.: 25,5...34,5)
1st speed
2nd speed
              1/min: 400
Del.quantity cm3/: 13,0..17,0
1000H.: (10,5..19,5)
              1/min: 550
3rd speed
Del.quantity cm3/: U
1000H.: -
              cm3/: 0,0...5,0
Automatic starting fuel delivery:
              1/min: 200
1st speed
Del.quantity cm3/: -
              1000H: 55,0
 ind.
2nd speed
              1/min: 350
Del.quantity cm3/: -
              1000H: 55,0
Shutoff electromagnet:
Cut-in
                    : 10,0
min, voltage
Rated voltage
                    : 12,0
Mounting and assembly dimensions:
Designation
K
               mm
KF
                    : K-0T
               mm
MS
                   : 0,9..1,15
               mm
SVS max.
                   : 2,4
               mm
Remarks:
```

Note inst. in remarks column

Test sheet : PER 5.8 B5 Edition : 20.07.87

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F1400 R39-1 Type number : 0 460 414 035

Customer-specific information

Customer-specific information Customer : PERKINS

Engine : Q 20.B.4.236 V

#### TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening -

pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 x Length mm : 450

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Setting value mm: 4,6...5,0

Supply—pump pressure:

Speed 1/min: 1100 Setting value bar: 4,7...5,3

Full-load del. W/out charge press.:

Remod 1/min: 1100

Del.quantity cm3/ 1 1000H.: 72,573,5	Del.quantity cm3/: 0,05 1000H.: -
Dispersion cm3/: 2,5 1000H.: (4,0)	2nd speed 1/min: 1550 Del.quantity cm3/: 28,535,5 1000H.: (27,536,5)
Low-idle speed regulation:	3rd speed 1/min: 1500
1	Del.quantity cm3/: 49,055,0
Speed 1/min: 350 I Del.quantity_cm3/ I	1000H.: (47,556,5) 4th speed 1/min: 1300
1000H.: 18,022,0	Do! graptity on 7/1 70 7 77 7
	Del.quantity cm3/: 70,773,3 1000H.: (69,474,6)
Dispersion cm3/: 2.5	5+b speed 1/min 1100
1000H.: (4,0)	5th speed 1/min: 1100
Full-load speed regulation:	Del.quantity cm3/: -
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1000H.: (70,474,6)
Speed 1/min: 1500 I	6th speed 1/min: 500
Deliquantity cm3/	Del.quantity cm3/: 42,045,0
1000H: 49,055,0	1000H.: (40,146,9)
Start:	Zero delivery (stop):
Speed 1/min: 100	Mech. shutoff:
Del.quantity :-	Speed 1/min: 1400
mind cm3/1000H.: 75,0	Del.quantity cm3/: -
Tananakina na kankana kitabina	1000H.: -
Inspection-pump test specifications	• 11 1 1 1
Test specifications in parentheses	Idle delivery:
1	
<del>\</del>	Mfg. date: until : -
Timing-device characteristic:	1st speed 1/min: 350
1	Del.quantity cm3/: -
1st speed 1/min: 500	1000H.: (15,524,5)
TD travei mm: 0,20,8	2nd speed 1/min: 400
mm: (0,01,2)	Del.quantity cm3/: 6,012,0
2nd speed 1/min: 1100	1000H.: (4,513,5)
TD travel mm: -	3rd speed 1/min: 450
mm: (4,15,5)	Del.quantity cm3/: 0,01,5
3rd speed 1/min: 1300	1000H.: -
	1000(1
TD travel mm: 5,86,6	Automobie stantine fuel deliverus
mm: (5,56,9)	Automatic starting fuel delivery:
0	4.4.4
Supply-pump pressure characteristic:	1st speed 1/min: 200
	Del.quantity cm3/: -
1st speed	ind. 1000H: 30,0
Supply-pump !	
pressure bar: 2,93,5	2nd speed 1/min: 250
2nd speed 1/min: 1300 I	Del.quantity cm3/: -
Supply-pump I	ax. 1000H: 40,0
pressure bar: 5,35,9	
	Shutoff electromagnet:
Overflow quantity at overflow valve:	•
1	Cut-in
1st speed 1/min: 500	min. voltage : 10,0
Oveflow : 4183	Rated voltage : 12,0
quantity cm3/10s; (2698)	
2nd speed 1/min: 1400	Mounting and assembly dimensions:
Overflow : 55138	nouncing and assembly armensions.
quantity cm3/10s: (40153)	Designation
Additional constructions (40.1122)	Designation
Notificant and baselines above	K mm:-
Delivery-quant, and breakaway char.:	KF mm : 5,15,4
1st speed 1/min: 1700	MS mm : $0,60,8$

SVS max. mm : -Remarks: N21

# BÖSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column

Test sheet : FIA 3.6 K
Edition : 20.07.87
replaces : 18.12.86
Calibrating oil : ISO 4113

Injection pump : VE 4/11F1350 R257 Type number : 0 460 414 039

Customer-specific information Customer : FIAT-IVECO

Engine : 8040.25.200

## TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder assembly : 1 688 901 020

Opening

pressure bar : 172...175

Perforated-plate diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,4

(from BDC): +-0,02(0,04)

Injection-pump setting values Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 3,8...4,2

## Supply-pump pressure:

Speed 1/min: 1000 Charge press. hPa: 1000

```
Charge press. hPa: 1000
Setting value bar: 5,7...6,3
                                                       Supply-pump
                                                                        bar: 3,6...4,2
Full-load del. with charge press.:
                                                        pressure
                                                                      1/min: 800
                                                       2nd speed
               1/min: 800
                                                                        hPa: 1000
                                                       Charge press.
Speed
Charge press. hPa: 1000
                                                       Supply-pump
                                                                      bar: 4,8...5,4
1/min: 1350
Deliquantity
               cm3/
                                                        pressure
                                                       3rd speed
              1000H.: 92,5...93,5
              cm3/:5,0
                                                                        hPa: 1000
Dispersion
                                                       Charge press.
              1000H : -
                                                       Supp Ty-pump
                                                        pressure
                                                                        bar: 7,0...7,6
Full-load del. w/out charge press.:
                                                       Overflow quantity at overflow valve:
              1/min : 500
Speed
Del.quantity cm3/
                                                                      1/min: 500
                                                       1st speed
              1000H.: 68,5...69,5
                                                       Charge press. hPa: 1000
                                                       Oveflow
                                                                            : 41...83
Low-idle speed regulation:
                                                        quantity cm3/10s: (26...98)
                                                                     1/min: 1350
                                                       2nd speed
Speed
               1/min: 350
                                                       Charge press. hPa: 1000
                                                                           : 55...138
                                                       Overflow
Charge press. hPa: -
                                                        quantity cm3/10s: (40...153)
               cm3/
Deliquantity
             1000H.: 22.0...26,0 cm3/: 3,5
Dispersion
                                                       Delivery-quant. and breakaway char.:
                                                       1st speed
              1000H.: (4,0)
                                                                     1/min: 500
                                                       Charge-air pressure-setting
Full-load speed regulation:
                                                                        hPa: 250
                                                        point
                                                       Del.quantity cm3/: 79,0...80,0
1000H.: (76,5...82,5)
               1/min: 1500
Speed
Charge press. hPa: 1000
                                                                      1/min: 1600
Deliquantity cm3/
                                                       2nd speed
                                                       Charge press. hPa: 1000
               1000H: 34,0...40,0
                                                       Del.quantity cm3/: 0,0...3,0
1000H.: -
Start:
                                                       3rd speed
                                                                      1/min: 1500
                                                       Charge press. hPa: 1000
Del.quantity cm3/: -
1000H.: (31,0...43,0)
Speed
               1/min: 100
Del.quantity
       cm3/1000H.: 90,0
mind
                                                                      1/min: 1350
                                                       4th speed
                                                       Charge press. hPa: 1000
Inspection-pump test specifications
                                                       Del.quantity cm3/: 86.5...89.5
1000H.: (85,0...91,0)
Test specifications in parentheses
                                                                      1/min: 800
                                                       5th speed
                                                       Charge press. hPa: 1000
Timing-device characteristic:
                                                       Del.quantity cm3/: -
                                                                     1000H.: (90,0...96,0)
               1/min: 800
1st speed
                                                                      1/min: 500
Charge press. hPa: 1000
                                                       6th speed
                                                       Charge press. hPa: 1000
Del.quantity cm3/: 83.5...86.5
1000H.: (82.0...88.0)
7th speed 1/min: 500
                  mm: 1,7...2,5
mm: (1,4...2,8)
TD travel
2nd speed
               1/min: 1000
Charge press. hPa: 1000
                                                       Charge press. hPa: -
TD travel
                  mm: -
              mm: (3,3...4,7)
1/min: 1350
                                                       Del.quantity cm3/: -
1000H.: (66,0...72,0)
3rd speed
Charge press. hPa: 1000
                  mm: 6,3...7,1
mm: (6,0...7,4)
                                                       Zero delivery (stop):
TD travel
                                                       Mech. shutoff:
                                                                     1/min: 1350
Supply-pump pressure characteristic:
                                                       Speed
                                                       Del.quantity cm3/: 0..3
1000H.: -
1st speed
              1/min: 500
```

```
Electr. shutoff:
                1/min: 350
Speed
ELAB
                 volt: -
Del.quantity cm3/: 0,0...3,0 max. 1000H.: -
Idle delivery:
Mfg. date: until : -
1st speed
               1/min: 350
Del.quantity cm3/: -

1000H.: (19,0..29,0)

2nd speed 1/min: 400

Del.quantity cm3/: 2,5...9,5

1000H.: -
                1/min: 430
3rd speed
Del.quantity cm3/: 0,0...3,0
1000H.: -
Automatic starting fuel delivery:
1st speed
                1/min: 150
Del.quantity cm3/: -
                1000H: 90,0
 ind.
                1/min: 230
2nd speed
Del.quantity cm3/: -
                1000H: 60.0
Shutoff electromagnet:
Cut-in
                      : 10,0
 min. voltage
                     : 12,0
Rated voltage
Mounting and assembly dimensions:
Designation
                 mm
KF
                      : 5,2...5,5
: 1,3..1,55
                 mm
MS
                 mm
                      : 5,6
: 17,0...19,0
SVS max.
                 mm
XK
                 mm
                     : 14,2...17,6
XL
                 mm
Remarks:
Correction at adjusting nut (46)
```

```
BOSCH-INJ.-PUMP TEST SPECIFICATIONS
                                                   Full-load del. w/out charge press.:
Note inst. in remarks column
                                                   Speed
                                                               1/min : 600
                                                  Del.quantity cm3/
1000H.: 25,9...26,9
Dispersion cm3/: 3,5
                  : PER 5.0 A
: 20.07.87
Test sheet
Edition
                                                                1000H.: (4,0)
replaces
Calibrating oil
                  : ISO 4113
                                                   Low-idle speed regulation:
                   : VE 4/11F1500 R266
Injection pump
Type number
                   : 0 460 414 041
                                                                 1/min: 350
                                                   Speed
                                                   Del.quantity cm3/
                                                               1000H.: 11,0...15,0
Customer-specific information
                                                                 cm3/: 3.0
Customer
                   : PERKINS
                                                   Dispersion
                                                                1000H.: (4,0)
                   : 500 HYDROVAN
                                                   Full-load speed regulation:
Engine
TEST BENCH REQUIREMENTS
                                                                 1/min: 1600
                                                   Speed
                                                   Del.quantity cm3/
Calibrating-oil
                                                                 1000H: 12,0...18,0
return temp.
with thermometer : 40...48
                                                   Start:
                  : 42...50
electronically
                                                                1/min: 100
                                                   Speed
                                                   Del.quantity
Inlet press., bar: 0,35
                                                   mind cm3/1000H.: 70.0
Calibrating nozzle-holder
 assembly
                  : 1 688 901 022
                                                   Inspection-pump test specifications
                                                   Test specifications in parentheses
Opening
pressure bar : 130...133
                                                   Timing-device characteristic:
Test inj. tubing : 1 680 750 073
                                                                 1/min: 700
                                                   1st speed
                                                   TD travel
                                                                   mm: 0, 4...1, 2
                                                                   mm: (0,1...1,5)
Outside diameter : 6
                                                                1/min: 1100
x Wall thickness : 2
                                                   2nd speed
               mm : 450
                                                   TD travel
                                                                   mm:
x Length
                                                                mm: (1,9...3,3)
1/min: 1350
Start of delivery
                                                   3rd speed
                                                                   mm: 3,4...4,2
mm: (3,1...4,5)
Prestroke
           mm : 0,5
                                                   TD travel
        (from BDC): +-0.02(0.04)
                                                                1/min: 1500
                                                   4th speed
Indicator setting:
                                                   TD travel
                                                                   mm: 3,7...4,5
                                                                   mm: (3,4...4,8)
Piston stroke mm: 1.42
Outlet
                 : A
                                                   Supply-pump pressure characteristic:
Injection-pump setting values
                                                                1/min: 700
Test specifications in parentheses
                                                   1st speed
                                                   Supply-pump
                                                                  bar: 3,5,..4,1
Timing-device travel:
                                                   pressure
                                                                1/min: 1500
                                                   2nd speed
Speed
            1/min: 1100
                                                   Supply-pump
                                                                  bar: 6,4...7,0
Setting value mm: 2,4...2,8
                                                    pressure
                                                   Overflow quantity at overflow valve:
Supply-pump pressure:
            1/min: 1100
                                                   1st speed
                                                                1/min: 700
Setting value bar: 4,9...5,5
```

```
Oveflow
                    : 41...83
            cm3/10s: (26...98)
 quantity
2nd speed
             1/min: 1500
Over flow
                    : 55...138
 quantity cm3/10s: (40...153)
Delivery-quant. and breakaway char.:
1st speed
             1/min: 1650
               cm3/: 0,0...3,0
Del.quantity
             1000H.:
              1/min: 1600
Znd speed
Del.quantity
              cm3/: -
             1000H.: (10,5...19,5)
              1/min: 1500
3rd speed
Del.quantity cm3/: 43,3....49,6)
              1/min: 1100
4th speed
Del.quantity cm3/: 44,8...47,8
1000H.: (43,7...48,9)
              1/min: 800
5th speed
Del.quantity cm3/: 36,3...38,3
1000H.: (34,7...39,9)
              1/min: 600
6th speed
Del.quantity cm3/: -
1000H.: (23,8...29,0)
Zero delivery (stop):
Mech. shutoff:
              1/min: 1500
Speed
Del.quantity
              cm3/: -
             1000H.: -
Idle delivery:
Mfg. date: until
              1/min: 350
1st speed
Del.quantity cm3/: -
1000H.: (8,5...17,5)
2nd speed
              1/min: 400
Del.quantity cm5/: 3,0....10,5)
3rd speed
              1/min: 460
Del.quantity cm3/: 0,0...4,5
1000H.: -
Automatic starting fuel delivery:
              1/min: 300
1st speed
Del.quantity
               cm3/: -
              1000H: 33,0
 ind.
              1/min: 400
2nd speed
Del.quantity cm3/: 20,0...35,0
              1000H: -
 ax.
Shutoff electromagnet:
```

: 10,0

Cut-in

N26

min. voltage

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

mm KF : K-0T mm

: 1,2..1,45 : 3,8 MS mm

SVS max. mm

Note inst. in remarks column

Test sheet : PER 5.0 B Edition : 20.07.87 replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F1500 R266-1 Type number : 0 460 414 042

Customer-specific information Customer : PERKINS

: 500 HYDROVAN Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 x Length mm : 450

Start of delivery

Prestroke mm: 0,5

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.42 Outlet | : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Setting value mm: 2,4...2,8

Supply-pump pressure:

Speed 1/min: 1100 Setting value bar: 4,9...5,5

```
Rated voltage
                    : 12,0
                                                        Oveflow
                                                                            : 41...83
                                                                    cr:3/10s: (26...98)
1/min: 1500
 ull-load del. w/out charge press.:
                                                         quantity
Mounting and assembly dimensions:
                                                        2nd speed
                                                                            : 55...138
             1/min : 600
                                                        Over flow
                                                         quantity cm3/10s: (40...153)
Designation: cm3/
                    : - _9...26,9
: K-OT
                mm
KF
                mm
                                                        Delivery-quant. and breakaway char.:
MS
                    : 1,2..1,45
                                                        1st speed
                                                                      1/min: 1650
                mm
                                                        Del.quantity cm3/: 0,0...3,0
1000H.: -
                    : 3,8
SVS max.
                mm
 ow-idle speed regulation:
                                                                      1/min: 1600
Remarks:
                                                        2nd speed
                                                        Del.quantity cm3/: -
1000H.: (10,5...19,5)
3rd speed 1/min: 1500
Speed
               1/min: 350
Del.quantity
               cm3/
              1000H.: 11.0...15.0 cm3/: 3.0
                                                        Del.quantity cm3/: 45.5...48.5
1000H.: (44.4...49.6)
Dispersion
              1000H.: (4,0)
                                                                      1/min: 1100
Full-load speed regulation:
                                                        4th speed
                                                        Del.quantity cm3/: 44.8...47.8
1000H.: (43.7...48.9)
Speed
               1/min: 1600
Del.quantity
                                                                      1/min: 800
               cm3/
                                                        5th speed
                                                        Del.quantity cm3/: 36,3...38,3
1000H.: (34,7...39,9)
               1000H: 12,0...18,0
Start:
                                                        6th speed
                                                                      1/min: 600
                                                        Del.quantity cm3/: -
1000H.: (23,8...29,0)
              1/min: 100
Speed
Del.quantity
        cm3/1000H.: 70.0
                                                        Zero delivery (stop):
mind
                                                        Mech. shutoff:
Inspection-pump test specifications
Test specifications in parentheses
                                                                      1/min: 1500
                                                        Speed
                                                        Del.quantity cm3/: - 1000H.: -
Timing-device characteristic:
                                                        Idle delivery:
               1/min: 700
1st speed
TD travel
                  mm: 0, 4...1, 2
                                                        Mfg. date: until
                  mm: (0,1,...1,5)
                                                        1st speed
                                                                      1/min: 350
               1/min: 1100
2nd speed
                                                        Del.quantity
                                                                       cm3/: ·
                                                                     1000H.: (8,5...17,5)
TD travel
                  mm:
               mm: (1,9...3,3)
1/min: <u>1</u>350
                                                                      1/min: 400
                                                        2nd speed
                                                       Del.quantity cm3/: 3,0....10,5)
3rd speed
                  mm: 3,4...4,2
mm: (3,1...4,5)
TD travel
                                                                      1/min: 460
                                                        3rd speed
                                                       Del.quantity cm3/: 0,0...4,5
1000H.: -
               1/min: 1500
4th speed
                  mm: 3,7...4,5
mm: (3,4...4,8)
TD travel
                                                        Automatic starting fuel delivery:
Supply-pump pressure characteristic:
                                                                      1/min: 300
                                                        1st speed
               1/min: 700
1st speed
                                                        Del.quantity
                                                                       cm3/:
                                                         ind.
                                                                       1000H: 33,0
Supply-pump
                 bar: 3,5...4,1
 pressure
2nd speed
               1/min: 1500
                                                        2nd speed
                                                                      1/min: 400
                                                        Del.quantity cm3/: 20,0...35,0
Supply-pump
                                                                      1000H: -
 pressure
                 bar: 6,4...7,0
Overflow quantity at overflow valve:
                                                        Shutoff electromagnet:
1st speed
              1/min: 700
                                                       Cut-in
                                                                            : 10,0
                                                        min. voltage
N28
```